DPW ENGINEERING DIVISION
TOWN OF LEXINGTON, MASSACHUSETTS

TOWN OF LEXINGTON, MASSACHUSETTS

STREET RESURFACING
CONTRACT # 26-44

March 19, 2026

TOWN OF LEXINGTON, MASSACHUSETTS

INDEX SHEET

CONTRACT # 26-44

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THE TOWN OF LEXINGTON, MASSACHUSETTS
INVITES PROPOSALS
STREET RESURFACING CONTRACT # 26-44

The Town of Lexington, Massachusetts, through its Town Manager, will receive bids for the Street Resurfacing Contract # 26-44, until **12:00 P.M.**, Local Time, **Thursday, March 19, 2026** at the Town Office Building, 1625 Massachusetts Avenue, Procurement Office, Third Floor, Lexington, Massachusetts. A payment bond and performance bond of not less than the amount of the contract, with satisfactory surety, for faithfully doing the work will be required.

Plans and specifications that include the required bid forms can be viewed as PDF and ordered for printing at www.accentblueprints.com. A copy fee is charged for printed copies. They can be picked up at Accent Printing, 99 Chelmsford Rd, N. Billerica, MA 01862 (978-362-8038.) Copies can be shipped on order upon payment of handling and mailing fee.

The proposal must be filled out and signed as directed therein, sealed in an envelope addressed to the Town Manager, Lexington, Massachusetts, endorsed with the name and address of the bidder, and marked "Street Resurfacing ", and left with either a bid bond in accordance with Chapter 30, Section 39M or a certified treasurer's or cashier's check issued by a responsible bank, for 5 percent of the bid for the proposed work payable to the Town of Lexington, Massachusetts, before **12:00 P.M., Local Time**, **Thursday, March 19, 2026.** This check to be the property of said Town if the Bidder fails to execute the contract and satisfactory bond within ten (10) days after the contract may have been awarded to him.

Attention is called to the fact that State Prevailing Wage Rates are established for the project as set forth in the contract documents.

Proposals filled out and left, with check or bid bond, as above directed and no others, will, at the above-named hour, be publicly opened and read at the Select Board Meeting Room located at The Town Office Building (1625 Massachusetts Avenue).

Sealed bids will be accepted at The Town Office Building, 1625 Massachusetts Ave., Lexington, MA 02420 until **12:00 pm on Thursday March 19, 2026**. Specific delivery instructions are as follows:

- Bids sent via mail or courier should be addressed to Elizabeth Mancini, Purchasing Director, 1625 Massachusetts Ave, Lexington, MA 02420.
- Bids that are hand-delivered should be deposited in the Procurement Lock-Box, located on the top floor of the Town Office Building, 1625 Massachusetts Ave, Lexington, MA 02420. The Lock-Box, located outside of the Comptroller's Office, will be checked for bids at the specific due date and time. Bids may also be hand-delivered directly to the Purchasing Director or her designee.

The undersigned reserves the right to reject any or all proposals, or to accept the proposal they deem best for the Town.

The bidder shall start the work under the contract within thirty (30) calendar days excluding Saturdays, Sundays, and Holidays, after the date of the contract.

No proposal may be withdrawn within thirty (30) days after the opening of bids. All pre-bid questions concerning the contract documents and the work contained therein must be submitted in writing to, and received by, John Livsey P.E., Town Engineer, 201 Bedford Street, Lexington, MA 02420, before **Friday, March 13, 2026.**

To bid on this project, Contractors must be prequalified in accordance with 720 CMR 5.00, Prequalification of Contractors by MassDOT. MassDOT prequalification of contractors, with the class of work as Pavement Surfacing (Options) with a minimum MassDOT Single Class of Work Limit of $4,056,459.00, will be required. “Documents will be available to any individual or firm. The initial contract term is for one year. The Agreement includes provisions to extend the contract for two (2) additional 12-month options. Valuation for purposes of MassDOT Prequalification is based on first year, $1,352,153.00, times three (3) to arrive at an estimated total prequal contract value of $4,056,459.00.

This contract is for one-year renewable for up to two more years if mutually agreed upon by the Town and the successful bidder. The Town of Lexington reserves the right to reject any and all bids if it be in the public interest to do so.

TOWN OF LEXINGTON,
MASSACHUSETTS
Elizabeth Mancini
Chief Procurement Officer
781-698-4628

TOWN OF LEXINGTON, MASSACHUSETTS

INSTRUCTIONS TO BIDDERS

1**. Receipt of Bids**

The Town may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. Any bid may be withdrawn prior to the above-mentioned time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw his/her bid for a period of 30 days, excluding Saturdays, Sundays, and legal holidays after actual date of the opening thereof.

2. Preparation of Bid

Each bid shall be submitted on the forms attached to these documents. The bid forms shall not be removed and submitted separately from the other documents. All blank spaces for bid prices must be filled in with the unit price for the item or the lump sum for which the proposal is made. Bidders must bid on each item including the supplemental section. All entries in the entire proposal must be made clearly, and prices must be written in both words and figures in the spaces provided. The Town reserves the right to remove the supplemental bid from this contract.

3. Bid Submission

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his/her address, and the name of the project for which the bid is submitted, and the name and number of the Contract for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as follows:

Bid Documents
Town of Lexington-Procurement Office
STREET RESURFACING CONTRACT # 26-44
1625 Massachusetts Ave.
Lexington, MA 02420

Sealed bids will be accepted at **The Town Office Building, 1625 Massachusetts Ave., Lexington, MA 02420 until 12:00 pm on Thursday, March 19, 2026. Specific delivery instructions are as follows:**

- **Bids sent via mail or courier should be addressed to Elizabeth Mancini, Purchasing Director, 1625 Massachusetts Ave, Lexington, MA 02420.**
- **Bids NOT sent via mail or courier should be hand-delivered to the Procurement Lock-Box, located on the top floor of the Town Office Building, 1625 Massachusetts Ave, Lexington, MA 02420. The Lock-Box, located outside of the Comptroller's Office, will be checked for bids at the specific due date and time. Bids may also be hand-delivered directly to the Purchasing Director or her designee.**

The Owner will receive sealed bids until the time, and at the location designated in the Notice to Contractors. It is the sole responsibility of the bidder to ensure timely receipt to the delivery location.

Please allow ample time for delivery as late bids will not be accepted. A public bid opening will be held in the Select Board Meeting Room in the Town Office Building. All bidders are invited to attend.

4. Bid Security

Every bid submitted by contractors shall be accompanied by a bid deposit in the form of a Bid Bond or cash, certified check, treasurer's or cashier's check, or a bid bond issued by a responsible bank or trust company and made payable to the Town of Lexington. The amount of the bid deposit shall be 5% of the amount of the bid. All security except those of the three lowest responsible and eligible bidders will be returned within five days, Saturdays, Sundays, and legal holidays excluded, after opening of the proposal. All bid securities will be returned on the execution of the contract or if no award is made within 30 days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening thereof, unless forfeited under the conditions herein stipulated.

In case a party to whom a contract is awarded shall fail or neglect to execute the contract and furnish the satisfactory bond in the time specified, the Town may determine the bidder has abandoned the contract and thereupon the proposal and acceptance shall be null and void, and the bid security accompanying the proposal shall be forfeited to the Town as liquidation damages for such failure or neglect and indemnify the Town for any loss which may be sustained by failure of the bidder to execute the contract and furnish the bonds as aforesaid, provided that, in case of death, disability, or other unforeseen circumstances affecting the bidder, such bid security may be returned to him/her. After execution of the contract and acceptance of the bonds by the Town, the bid security accompanying the proposal of the successful bidder will be returned.

5. Time of Completion

The bidder must agree to commence work within the time specified in the contract documents, and to fully complete the project no later than November 15, 2026. See subsection 8.03, “Prosecution of Work” for sequence of completion.

6. Performance and Payment Bonds

A bond (performance bond) in the sum of the total amount (100%) of the Contract by the successful bidder and an additional bond in equal amount covering the payment for all labor and materials (payment bond) used in the work will be required. These bonds must be provided by a surety company that is listed with the Commonwealth of Massachusetts Approved Surety List. These bonds will be required at the execution of the contract. Attorneys-in-fact who sign contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

7. OSHA ten certification

All persons employed at the worksite must have successfully completed at least ten hours of an OSHA certified construction safety and health training. The ‘Certificate of OSHA training of personnel’ form attached in the contract must be signed and proof of training provided along with the first certified payroll.

8. Laws and Regulations

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to

the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

9. Withdrawal of Bids

Except as hereinafter expressly provided, a bidder may not withdraw his bid until after thirty, (30) consecutive calendar days after the actual date of opening of Bids.

Upon proper written request and identification, Bids may be withdrawn only as follows:

1. At any time prior to the designated time for the opening of Bids.

2. Death or serious injury of a principal.

3. With the approval of the Town.

4. At any time after the expiration of the period during which withdrawal is prohibited provided the bid has not been accepted by the Town.

10. Execution of Contract

The party to whom the contract is awarded will be required to execute the contract and furnish the bonds duly executed with a satisfactory surety company within five days, excluding Saturdays, Sundays, and legal holidays, of the date of the mailing of the notice to the bidder according to the address given by him, that the contract is ready for execution.

11. Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the drawings and contract documents, including all referenced documents. The failure or omission of any bidder to receive or examine any form, instrument, or document shall in no way relieve any bidder from the obligation in respect to his bid.

11. Omissions, Discrepancies, Interpretations and Addenda

Should a bidder find discrepancies in, or omissions from, the drawings or contract documents, or should he/she have questions as to the interpretation of the plans or contract documents he/she shall submit such in writing to the Director of Public Works at least five days before the date herein set for the opening of bids. An interpretation will be mailed by certified mail to prospective bidders at the addresses given by them on or about two days before the opening of bids. Signed copies of all addenda shall be included with the bid. Omission of the signed addendum shall be cause for rejections of the bid.

12. Record of Address

Prospective bidders shall at the time the deposit is made and plans and specifications are secured, place on file with the Director of Public Works their address, and are required to make any changes necessary to ensure that the record is accurate, complete, and up to date.

13. Massachusetts Sales and Use Tax

Materials purchased for permanent installation in the work will be exempt from the Massachusetts Sales and Use tax. Each bidder shall take this exemption into account in calculating his/her bid for the work.

14. State Tax Affidavit

Prospective bidders are required to certify that all state tax returns have been filed and all state taxes have been paid in order to be eligible to enter into a contract with the Town on this project. The form in section 0500 is to be used for this purpose and is to be completed and returned as part of the bid and proposal.

15. Prevailing Wage Rates

Prevailing rates for wages for work performed under this Contract will be as predetermined by the Commissioner of Labor and Industries of the Commonwealth of Massachusetts in accordance with the provisions of Sections 26 to 27D, inclusive, of c.149 of M.G.L. A schedule of the prevailing wages is included in Prevailing Wage Rates Section 0300.

16. Sub-bids

No sub bids will be sought in connection with this Contract.

17. Bid Deposit

A bid deposit is not required to receive bids as they are distributed electronically. This DOES NOT exempt bidders from providing 5% bid security described in item 4 above.

18. Extension of Contract

The Town reserves the right extend this contract in one-year increments for a period of up to three years for the purpose of performing additional work of a similar nature to the work as originally bid at the contract unit prices. Any extension of this contract must be made by mutual agreement between the Town and the Contractor.

TOWN OF LEXINGTON
PREVAILING WAGE RATES

A schedule of Prevailing wage rates excerpted from that for "Mechanics, Apprentices, Teamsters, Chauffeurs, and Laborers" issued for this work by the Commissioner of Labor and Industries of Massachusetts, in accordance with Chapter 461, Acts of 1935.

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
Prevailing Wage Rates

MAURA HEALEY
Governor
KIM DRISCOLL
Lt. Governor

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority:	Lexington - Department of Public Works	**City/Town:**	LEXINGTON
Contract Number:	26-44		
Description of Work:	Traditional paving work including but not limited to: reclamation, grading, cold planing, mill and overlay, earth excavation, installing drainage, adjusting/rebuilding utility structures, installing HMA and other work		
Job Location:	201 Bedford St, Lexington MA		

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F “rental of equipment” contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets form DLS and provide them to the contractor.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the “Wage Request Number” on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$42.05	$15.41	$21.78	$0.00	$0.00	$79.24
	6/1/2026	$43.05	$15.41	$21.78	$0.00	$0.00	$80.24
	8/1/2026	$43.05	$15.91	$21.78	$0.00	$0.00	$80.74
	12/1/2026	$43.05	$15.91	$23.52	$0.00	$0.00	$82.48
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$41.12	$15.41	$21.78	$0.00	$0.00	$78.31
	6/1/2026	$43.12	$15.41	$21.78	$0.00	$0.00	$80.31
	8/1/2026	$43.12	$15.91	$21.78	$0.00	$0.00	$80.81
	12/1/2026	$43.12	$15.91	$23.52	$0.00	$0.00	$82.55
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$42.24	$15.41	$21.78	$0.00	$0.00	$79.43
	6/1/2026	$43.24	$15.41	$21.78	$0.00	$0.00	$80.43
	8/1/2026	$43.24	$15.91	$21.78	$0.00	$0.00	$80.93
	12/1/2026	$43.24	$15.91	$23.52	$0.00	$0.00	$82.67
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"	1/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
AIR TRACK OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.65	$9.75	$9.11	$0.00	$70.73
	6/1/2026	$42.66	$10.65	$9.75	$9.11	$0.00	$72.17
	12/1/2026	$44.10	$10.65	$9.75	$9.11	$0.00	$73.61
	6/1/2027	$45.55	$10.65	$9.75	$9.11	$0.00	$75.06
	12/1/2027	$47.00	$10.65	$9.75	$9.11	$0.00	$76.51
	6/1/2028	$48.50	$10.65	$9.75	$9.11	$0.00	$78.01
	12/1/2028	$50.00	$10.65	$9.75	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.22	$10.65	$9.75	$9.21	$0.00	$70.83
	6/1/2026	$42.66	$10.65	$9.75	$9.21	$0.00	$72.27
	12/1/2026	$44.10	$10.65	$9.75	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	12/1/2025	$44.80	$14.50	$4.30	$6.75	$0.00	$70.35
ASPHALT RAKER LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33
	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
LABORERS	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
LABORERS - ZONE 2	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER	12/1/2025	$41.22	$10.65	$9.75	$9.11	$0.00	$70.73
LABORERS	6/1/2026	$42.66	$10.65	$9.75	$9.11	$0.00	$72.17
LABORERS - ZONE 2	12/1/2026	$44.10	$10.65	$9.75	$9.11	$0.00	$73.61
	6/1/2027	$45.55	$10.65	$9.75	$9.11	$0.00	$75.06
	12/1/2027	$47.00	$10.65	$9.75	$9.11	$0.00	$76.51
	6/1/2028	$48.50	$10.65	$9.75	$9.11	$0.00	$78.01
	12/1/2028	$50.00	$10.65	$9.75	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	12/1/2025	$41.22	$10.65	$9.75	$9.21	$0.00	$70.83
LABORERS	6/1/2026	$42.66	$10.65	$9.75	$9.21	$0.00	$72.27
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$44.10	$10.65	$9.75	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
BOILER MAKER	1/1/2024	$48.12	$7.07	$14.60	$6.00	$0.00	$75.79
BOILERMAKERS LOCAL 29							
BOILERMAKERS LOCAL 29							

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
2	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
3	70.00	$33.68	$7.07	$10.03	$4.20	$0.00	$54.98
4	75.00	$36.09	$7.07	$10.74	$4.50	$0.00	$58.40
5	80.00	$38.50	$7.07	$11.45	$4.80	$0.00	$61.82
6	85.00	$40.90	$7.07	$12.18	$5.10	$0.00	$65.25

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
7	90.00	$43.31	$7.07	$12.88	$5.40	$0.00	$68.66
8	95.00	$45.71	$7.07	$13.62	$5.70	$0.00	$72.10

Apprentice to Journeyworker Ratio: 1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (WALTHAM)	2/1/2026	$67.95	$12.84	$15.57	$8.02	$0.00	$104.38
	8/1/2026	$70.15	$12.84	$15.57	$8.02	$0.00	$106.58
	2/1/2027	$71.55	$12.84	$15.57	$8.02	$0.00	$107.98

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.98	$12.84	$15.57	$8.02	$0.00	$70.41
2	60.00	$40.77	$12.84	$15.57	$8.02	$0.00	$77.20
3	70.00	$47.57	$12.84	$15.57	$8.02	$0.00	$84.00
4	80.00	$54.36	$12.84	$15.57	$8.02	$0.00	$90.79
5	90.00	$61.16	$12.84	$15.57	$8.02	$0.00	$97.59

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.08	$12.84	$15.57	$8.02	$0.00	$71.51
2	60.00	$42.09	$12.84	$15.57	$8.02	$0.00	$78.52
3	70.00	$49.11	$12.84	$15.57	$8.02	$0.00	$85.54
4	80.00	$56.12	$12.84	$15.57	$8.02	$0.00	$92.55
5	90.00	$63.14	$12.84	$15.57	$8.02	$0.00	$99.57

Apprentice to Journeyworker Ratio: 1:5

BULLDOZER/GRADER/SCRAPER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2025	$49.10	$10.65	$9.75	$9.80	$0.00	$79.30
	6/1/2026	$50.65	$10.65	$9.75	$9.80	$0.00	$80.85
	12/1/2026	$52.15	$10.65	$9.75	$9.80	$0.00	$82.35
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER LABORERS	12/1/2025	$47.95	$10.65	$9.75	$9.80	$0.00	$78.15
	6/1/2026	$49.50	$10.65	$9.75	$9.80	$0.00	$79.70

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.00	$10.65	$9.75	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	12/1/2025	$48.28	$10.65	$9.75	$9.80	$0.00	$78.48
LABORERS	6/1/2026	$49.83	$10.65	$9.75	$9.80	$0.00	$80.03
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.33	$10.65	$9.75	$9.80	$0.00	$81.53
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
LABORERS	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
LABORERS - ZONE 2	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
CARPENTER	9/1/2025	$50.35	$10.33	$11.47	$8.50	$0.00	$80.65
CARPENTERS	3/1/2026	$51.60	$10.33	$11.47	$8.50	$0.00	$81.90
CARPENTERS -ZONE 2 (Eastern Massachusetts)	9/1/2026	$52.85	$10.33	$11.47	$8.50	$0.00	$83.15
	3/1/2027	$54.10	$10.33	$11.47	$8.50	$0.00	$84.40

Apprentice: CARPENTER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$22.66	$10.33	$0.00	$1.73	$0.00	$34.72
2	45.00	$22.66	$10.33	$0.00	$1.73	$0.00	$34.72
3	55.00	$27.69	$10.33	$0.00	$3.40	$0.00	$41.42
4	55.00	$27.69	$10.33	$0.00	$3.40	$0.00	$41.42
5	70.00	$35.25	$10.33	$11.41	$5.10	$0.00	$62.09
6	70.00	$35.25	$10.33	$11.41	$5.10	$0.00	$62.09
7	80.00	$40.28	$10.33	$11.44	$6.80	$0.00	$68.85
8	80.00	$40.28	$10.33	$11.44	$6.80	$0.00	$68.85

Apprentice: CARPENTER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.22	$10.33	$0.00	$1.73	$0.00	$35.28
2	45.00	$23.22	$10.33	$0.00	$1.73	$0.00	$35.28
3	55.00	$28.38	$10.33	$0.00	$3.40	$0.00	$42.11
4	55.00	$28.38	$10.33	$0.00	$3.40	$0.00	$42.11
5	70.00	$36.12	$10.33	$11.41	$5.10	$0.00	$62.96
6	70.00	$36.12	$10.33	$11.41	$5.10	$0.00	$62.96
7	80.00	$41.28	$10.33	$11.44	$6.80	$0.00	$69.85
8	80.00	$41.28	$10.33	$11.44	$6.80	$0.00	$69.85

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:5							
CARPENTER WOOD FRAME	10/1/2025	$32.91	$7.10	$4.47	$2.20	$0.00	$46.68
CARPENTERS	10/1/2026	$34.21	$7.10	$4.47	$2.20	$0.00	$47.98
CARPENTERS -ZONE 2 (Wood Frame)							
All Aspects of New Wood Frame Work							

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$16.46	$7.02	$0.00	$0.00	$0.00	$23.48
2	50.00	$16.46	$7.02	$0.00	$0.00	$0.00	$23.48
3	55.00	$18.10	$7.02	$0.00	$2.00	$0.00	$27.12
4	55.00	$18.10	$7.02	$0.00	$2.20	$0.00	$27.32
5	70.00	$23.04	$7.02	$4.47	$2.20	$0.00	$36.73
6	70.00	$23.04	$7.02	$4.47	$2.20	$0.00	$36.73
7	80.00	$26.33	$7.02	$4.47	$2.20	$0.00	$40.02
8	80.00	$26.33	$7.02	$4.47	$2.20	$0.00	$40.02

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$17.11	$7.10	$0.00	$0.00	$0.00	$24.21
2	50.00	$17.11	$7.10	$0.00	$0.00	$0.00	$24.21
3	55.00	$18.82	$7.10	$0.00	$2.20	$0.00	$28.12
4	55.00	$18.82	$7.10	$0.00	$2.20	$0.00	$28.12
5	70.00	$23.95	$7.10	$4.47	$2.20	$0.00	$37.72
6	70.00	$23.95	$7.10	$4.47	$2.20	$0.00	$37.72
7	80.00	$27.37	$7.10	$4.47	$2.20	$0.00	$41.14
8	80.00	$27.37	$7.10	$4.47	$2.20	$0.00	$41.14

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:5							
CEMENT MASONRY/PLASTERING	1/1/2026	$53.24	$13.35	$16.43	$7.78	$1.80	$92.60
PLASTERERS AND CEMENT MASONS LOCAL 534	7/1/2026	$54.49	$13.35	$16.43	$7.78	$1.80	$93.85
Plasterers and Cement Masons - Zone 1	1/1/2027	$55.94	$13.35	$16.43	$7.78	$1.80	$95.30
	7/1/2027	$57.29	$13.35	$16.43	$7.78	$1.80	$96.65
	1/1/2028	$58.64	$13.35	$16.43	$7.78	$1.80	$98.00

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.62	$13.35	$16.43	$0.00	$0.00	$56.40
2	60.00	$31.94	$13.35	$16.43	$7.78	$1.80	$71.30

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	$34.61	$13.35	$16.43	$7.78	$1.80	$73.97
4	70.00	$37.27	$13.35	$16.43	$7.78	$1.80	$76.63
5	75.00	$39.93	$13.35	$16.43	$7.78	$1.80	$79.29
6	80.00	$42.59	$13.35	$16.43	$7.78	$1.80	$81.95
7	90.00	$47.92	$13.35	$16.43	$0.00	$0.00	$77.70

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.25	$13.35	$16.43	$0.00	$0.00	$57.03
2	60.00	$32.69	$13.35	$16.43	$7.78	$1.80	$72.05
3	65.00	$35.42	$13.35	$16.43	$7.78	$1.80	$74.78
4	70.00	$38.14	$13.35	$16.43	$7.78	$1.80	$77.50
5	75.00	$40.87	$13.35	$16.43	$7.78	$1.80	$80.23
6	80.00	$43.59	$13.35	$16.43	$7.78	$1.80	$82.95
7	90.00	$49.04	$13.35	$0.00	$7.78	$0.00	$70.17

Apprentice to Journeyworker Ratio: 1:5

CHAIN SAW OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$60.48	$16.05	$13.25	$3.25	$0.00	$93.03
	6/1/2026	$61.81	$16.05	$13.25	$3.25	$0.00	$94.36
	12/1/2026	$63.29	$16.05	$13.25	$3.25	$0.00	$95.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$37.97	$16.05	$13.25	$3.25	$0.00	$70.52
	6/1/2026	$38.83	$16.05	$13.25	$3.25	$0.00	$71.38
	12/1/2026	$39.78	$16.05	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: DELEADER (BRIDGE)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DEMO: ADZEMAN LABORERS LABORERS - ZONE 2	12/1/2025	$48.00	$10.65	$9.75	$9.65	$0.00	$78.05
	6/1/2026	$49.55	$10.65	$9.75	$9.65	$0.00	$79.60
	12/7/2026	$51.05	$10.65	$9.75	$9.65	$0.00	$81.10
	6/7/2027	$52.65	$10.65	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.25	$10.65	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.93	$10.65	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.60	$10.65	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$49.00	$10.65	$9.75	$9.65	$0.00	$79.05
	6/1/2026	$50.55	$10.65	$9.75	$9.65	$0.00	$80.60
	12/7/2026	$52.05	$10.65	$9.75	$9.65	$0.00	$82.10
	6/7/2027	$53.65	$10.65	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.25	$10.65	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.93	$10.65	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.60	$10.65	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS LABORERS LABORERS - ZONE 2	12/1/2025	$48.75	$10.65	$9.75	$9.65	$0.00	$78.80
	6/1/2026	$50.30	$10.65	$9.75	$9.65	$0.00	$80.35
	12/7/2026	$51.80	$10.65	$9.75	$9.65	$0.00	$81.85
	6/7/2027	$53.40	$10.65	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$55.00	$10.65	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.68	$10.65	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.35	$10.65	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER LABORERS LABORERS - ZONE 2	12/1/2025	$49.00	$10.65	$9.75	$9.65	$0.00	$79.05
	6/1/2026	$50.55	$10.65	$9.75	$9.65	$0.00	$80.60
	12/7/2026	$52.05	$10.65	$9.75	$9.65	$0.00	$82.10
	6/7/2027	$53.65	$10.65	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.25	$10.65	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.93	$10.65	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.60	$10.65	$9.75	$9.65	$0.00	$88.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$48.75	$10.65	$9.75	$9.65	$0.00	$78.80
	6/1/2026	$50.30	$10.65	$9.75	$9.65	$0.00	$80.35
	12/7/2026	$51.80	$10.65	$9.75	$9.65	$0.00	$81.85
	6/7/2027	$53.40	$10.65	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$55.00	$10.65	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.68	$10.65	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.35	$10.65	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER LABORERS LABORERS - ZONE 2	12/1/2025	$48.00	$10.65	$9.75	$9.65	$0.00	$78.05
	6/1/2026	$49.55	$10.65	$9.75	$9.65	$0.00	$79.60
	12/7/2026	$51.05	$10.65	$9.75	$9.65	$0.00	$81.10
	6/7/2027	$52.65	$10.65	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.25	$10.65	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.93	$10.65	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.60	$10.65	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$78.11	$10.08	$11.62	$10.04	$0.00	$109.85
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate							
DIVER TENDER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate							
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$83.69	$10.08	$11.62	$12.67	$0.00	$118.06
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 DRAWBRIDGE - SEIU LOCAL 888	7/1/2020	$26.77	$6.67	$3.93	$0.00	$0.16	$37.53
ELECTRICIAN ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2025	$66.17	$13.00	$14.37	$8.72	$0.00	$102.26
	3/1/2026	$66.86	$13.00	$14.64	$9.00	$0.00	$103.50
	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90

Apprentice: ELECTRICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$26.47	$13.00	$0.79	$0.00	$0.00	$40.26
2	40.00	$26.47	$13.00	$0.79	$0.00	$0.00	$40.26
3	45.00	$29.78	$13.00	$13.27	$3.92	$0.00	$59.97
4	45.00	$29.78	$13.00	$13.27	$3.92	$0.00	$59.97
5	50.00	$33.09	$13.00	$13.37	$4.36	$0.00	$63.82
6	55.00	$36.39	$13.00	$13.47	$4.80	$0.00	$67.66
7	60.00	$39.70	$13.00	$13.57	$5.23	$0.00	$71.50
8	65.00	$43.01	$13.00	$13.67	$5.67	$0.00	$75.35
9	70.00	$46.32	$13.00	$13.77	$6.10	$0.00	$79.19
10	75.00	$49.63	$13.00	$13.87	$6.54	$0.00	$83.04

Apprentice: ELECTRICIAN

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$26.74	$13.00	$0.80	$0.00	$0.00	$40.54
2	40.00	$26.74	$13.00	$0.80	$0.00	$0.00	$40.54
3	45.00	$30.09	$13.00	$13.53	$4.05	$0.00	$60.67
4	45.00	$30.09	$13.00	$13.53	$4.05	$0.00	$60.67
5	50.00	$33.43	$13.00	$13.63	$4.50	$0.00	$64.56
6	55.00	$36.77	$13.00	$13.73	$4.95	$0.00	$68.45
7	60.00	$40.12	$13.00	$13.83	$5.40	$0.00	$72.35
8	65.00	$43.46	$13.00	$13.93	$5.85	$0.00	$76.24
9	70.00	$46.80	$13.00	$14.03	$6.30	$0.00	$80.13
10	75.00	$50.15	$13.00	$14.13	$6.75	$0.00	$84.03

Apprentice Notes

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Apprentice to Journeyworker Ratio: 2:3

ELEVATOR CONSTRUCTOR	1/1/2026	$77.26	$16.38	$11.06	$10.70	$0.00	$115.40
ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2027	$80.55	$16.48	$11.16	$11.00	$0.00	$119.19
ELEVATOR CONSTRUCTORS LOCAL 4							

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$38.63	$0.00	$0.00	$0.00	$0.00	$38.63
2	55.00	$42.49	$16.38	$11.06	$10.70	$0.00	$80.63
3	65.00	$50.22	$16.38	$11.06	$10.70	$0.00	$88.36
4	70.00	$54.08	$16.38	$11.06	$10.70	$0.00	$92.22
5	80.00	$61.81	$16.38	$11.06	$10.70	$0.00	$99.95

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$40.28	$0.00	$0.00	$0.00	$0.00	$40.28
2	55.00	$44.30	$16.48	$11.16	$11.00	$0.00	$82.94
3	65.00	$52.36	$16.48	$11.16	$11.00	$0.00	$91.00
4	70.00	$56.39	$16.48	$11.16	$11.00	$0.00	$95.03
5	80.00	$64.44	$16.48	$11.16	$11.00	$0.00	$103.08

Apprentice to Journeyworker Ratio: 1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4 ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2026	$54.08	$16.38	$11.06	$10.07	$0.00	$91.59
	1/1/2027	$56.39	$16.48	$11.16	$11.00	$0.00	$95.03
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33
	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2025	$53.56	$16.05	$13.25	$3.25	$0.00	$86.11
	5/1/2026	$55.00	$16.05	$13.25	$3.25	$0.00	$87.55
	11/1/2026	$56.29	$16.05	$13.25	$3.25	$0.00	$88.84
	5/1/2027	$57.72	$16.05	$13.25	$3.25	$0.00	$90.27
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2025	$55.17	$16.05	$13.25	$3.25	$0.00	$87.72
	5/1/2026	$56.62	$16.05	$13.25	$3.25	$0.00	$89.17
	11/1/2026	$57.92	$16.05	$13.25	$3.25	$0.00	$90.47
	5/1/2027	$59.37	$16.05	$13.25	$3.25	$0.00	$91.92
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2025	$26.03	$16.05	$13.25	$3.25	$0.00	$58.58
	5/1/2026	$26.88	$16.05	$13.25	$3.25	$0.00	$59.43
	11/1/2026	$27.64	$16.05	$13.25	$3.25	$0.00	$60.19
	5/1/2027	$28.49	$16.05	$13.25	$3.25	$0.00	$61.04

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIRE ALARM INSTALLER	9/1/2025	$66.17	$13.00	$14.37	$9.00	$0.00	$102.54
ELECTRICIANS LOCAL 103	3/1/2026	$66.86	$13.00	$14.64	$9.00	$0.00	$103.50
ELECTRICIANS LOCAL 103	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47
	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE	9/1/2025	$52.94	$13.00	$13.97	$6.98	$0.00	$86.89
/ COMMISSIONING	3/1/2026	$53.49	$13.00	$14.23	$7.20	$0.00	$87.92
ELECTRICIANS LOCAL 103	9/1/2026	$55.02	$13.00	$14.28	$7.20	$0.00	$89.50
ELECTRICIANS LOCAL 103	3/1/2027	$55.98	$13.00	$14.31	$7.20	$0.00	$90.49
	9/1/2027	$57.50	$13.00	$14.36	$7.20	$0.00	$92.06
	3/1/2028	$58.46	$13.00	$14.38	$7.20	$0.00	$93.04
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FIREMAN (ASST. ENGINEER)	12/1/2025	$47.69	$16.05	$13.25	$3.25	$0.00	$80.24
OPERATING ENGINEERS LOCAL 4	6/1/2026	$48.75	$16.05	$13.25	$3.25	$0.00	$81.30
OPERATING ENGINEERS LOCAL 4	12/1/2026	$49.93	$16.05	$13.25	$3.25	$0.00	$82.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FLAGGER & SIGNALER (HEAVY & HIGHWAY)	12/1/2025	$28.09	$10.65	$9.75	$9.21	$0.00	$57.70
LABORERS	6/1/2026	$29.21	$10.65	$9.75	$9.21	$0.00	$58.82
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$29.21	$10.65	$9.75	$9.21	$0.00	$58.82
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
FLOORCOVERER	9/1/2025	$57.74	$10.33	$11.47	$8.80	$0.00	$88.34
FLOORCOVERERS LOCAL 2168	3/1/2026	$59.24	$10.33	$11.47	$8.80	$0.00	$89.84
FLOORCOVERERS LOCAL 2168 ZONE I	9/1/2026	$60.74	$10.33	$11.47	$8.80	$0.00	$91.34
	3/1/2027	$62.24	$10.33	$11.47	$8.80	$0.00	$92.84

Apprentice: FLOORCOVERER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$25.98	$10.33	$0.00	$1.76	$0.00	$38.07
2	45.00	$25.98	$10.33	$0.00	$1.76	$0.00	$38.07
3	55.00	$31.76	$10.33	$0.00	$3.52	$0.00	$45.61
4	55.00	$31.76	$10.33	$0.00	$3.52	$0.00	$45.61
5	70.00	$40.42	$10.33	$11.47	$5.28	$0.00	$67.50
6	70.00	$40.42	$10.33	$11.47	$5.28	$0.00	$67.50
7	80.00	$46.19	$10.33	$11.47	$7.04	$0.00	$75.03
8	80.00	$46.19	$10.33	$11.47	$7.04	$0.00	$75.03

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: FLOORCOVERER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$26.66	$10.33	$0.00	$1.76	$0.00	$38.75
2	45.00	$26.66	$10.33	$0.00	$1.76	$0.00	$38.75
3	55.00	$32.58	$10.33	$0.00	$3.52	$0.00	$46.43
4	55.00	$32.58	$10.33	$0.00	$3.52	$0.00	$46.43
5	70.00	$41.47	$10.33	$11.47	$5.28	$0.00	$68.55
6	70.00	$41.47	$10.33	$11.47	$5.28	$0.00	$68.55
7	80.00	$47.39	$10.33	$11.47	$7.04	$0.00	$76.23
8	80.00	$47.39	$10.33	$11.47	$7.04	$0.00	$76.23

Apprentice Notes

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

FORK LIFT/CHERRY PICKER	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS	12/1/2025	$37.97	$16.05	$13.25	$3.25	$0.00	$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	$38.83	$16.05	$13.25	$3.25	$0.00	$71.38
OPERATING ENGINEERS LOCAL 4	12/1/2026	$39.78	$16.05	$13.25	$3.25	$0.00	$72.33

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2026	$49.06	$10.35	$12.00	$12.60	$0.00	$84.01
GLAZIERS LOCAL 35							
GLAZIERS LOCAL 35 (ZONE 2)							

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
2	55.00	$26.98	$10.35	$0.00	$6.88	$0.00	$44.21
3	60.00	$29.44	$10.35	$0.00	$7.50	$0.00	$47.29
4	65.00	$31.89	$10.35	$0.00	$8.13	$0.00	$50.37
5	70.00	$34.34	$10.35	$12.00	$8.75	$0.00	$65.44
6	75.00	$36.80	$10.35	$12.00	$9.38	$0.00	$68.53
7	80.00	$39.25	$10.35	$12.00	$10.00	$0.00	$71.60
8	90.00	$44.15	$10.35	$12.00	$11.25	$0.00	$77.75

Apprentice to Journeyworker Ratio: 1:1

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$32.88	$0.00	$0.00	$0.00	$0.00	$32.88
2	60.00	$35.87	$16.05	$13.25	$3.25	$0.00	$68.42
3	65.00	$38.86	$16.05	$13.25	$3.25	$0.00	$71.41
4	70.00	$41.85	$16.05	$13.25	$3.25	$0.00	$74.40
5	75.00	$44.84	$16.05	$13.25	$3.25	$0.00	$77.39
6	80.00	$47.82	$16.05	$13.25	$3.25	$0.00	$80.37
7	85.00	$50.81	$16.05	$13.25	$3.25	$0.00	$83.36
8	90.00	$53.80	$16.05	$13.25	$3.25	$0.00	$86.35

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$33.32	$0.00	$0.00	$0.00	$0.00	$33.32
2	60.00	$36.35	$16.05	$13.25	$3.25	$0.00	$68.90
3	65.00	$39.38	$16.05	$13.25	$3.25	$0.00	$71.93
4	70.00	$42.41	$16.50	$13.25	$3.25	$0.00	$75.41
5	75.00	$45.44	$16.50	$13.25	$3.25	$0.00	$78.44
6	80.00	$48.46	$16.50	$13.25	$3.25	$0.00	$81.46
7	85.00	$51.49	$16.50	$13.25	$3.25	$0.00	$84.49
8	90.00	$54.52	$16.50	$13.25	$3.25	$0.00	$87.52

Apprentice to Journeyworker Ratio: 1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2025	$66.17	$13.00	$14.37	$8.72	$0.00	$102.26
	3/1/2026	$66.86	$13.00	$14.64	$9.00	$0.00	$103.50
	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47
	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09

For apprentice rates see "Apprentice- SHEET METAL WORKER"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
	3/1/2026	$70.58	$13.95	$14.00	$9.55	$0.00	$108.08
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
	3/1/2026	$70.58	$13.95	$14.00	$9.55	$0.00	$108.08
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.65	$9.75	$9.11	$0.00	$70.73
	6/1/2026	$42.66	$10.65	$9.75	$9.11	$0.00	$72.17
	12/1/2026	$44.10	$10.65	$9.75	$9.11	$0.00	$73.61
	6/1/2027	$45.55	$10.65	$9.75	$9.11	$0.00	$75.06
	12/1/2027	$47.00	$10.65	$9.75	$9.11	$0.00	$76.51
	6/1/2028	$48.50	$10.65	$9.75	$9.11	$0.00	$78.01
	12/1/2028	$50.00	$10.65	$9.75	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.22	$10.65	$9.75	$9.21	$0.00	$70.83
	6/1/2026	$42.66	$10.65	$9.75	$9.21	$0.00	$72.27
	12/1/2026	$44.10	$10.65	$9.75	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	9/1/2025	$60.34	$14.75	$9.52	$10.09	$0.00	$94.70
	9/1/2026	$63.76	$14.75	$9.52	$10.09	$0.00	$98.12

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$30.17	$14.75	$9.27	$5.05	$0.00	$59.24
2	60.00	$36.20	$14.75	$9.32	$6.05	$0.00	$66.32
3	70.00	$42.24	$14.75	$9.37	$7.06	$0.00	$73.42
4	80.00	$48.27	$14.75	$9.42	$8.07	$0.00	$80.51

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$31.88	$14.75	$9.27	$5.05	$0.00	$60.95
2	60.00	$38.26	$14.75	$9.32	$6.05	$0.00	$68.38
3	70.00	$44.63	$14.75	$9.37	$7.06	$0.00	$75.81
4	80.00	$51.01	$14.75	$9.42	$8.07	$0.00	$83.25

Apprentice to Journeyworker Ratio: 1:4

IRONWORKER/WELDER	9/16/2025	$57.87	$9.05	$12.75	$14.50	$0.00	$94.17

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
IRONWORKERS LOCAL 7 IRONWORKERS LOCAL 7 (BOSTON AREA)							

Apprentice: IRONWORKER/WELDER

Effective Date: 9/16/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$34.72	$9.05	$12.75	$4.50	$0.00	$61.02
2	75.00	$43.40	$9.05	$12.75	$4.50	$0.00	$69.70
3	85.00	$49.19	$9.05	$12.75	$4.50	$0.00	$75.49
4	0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5	0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
6	0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Apprentice to Journeyworker Ratio: 1:4

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER LABORERS LABORERS - ZONE 2	12/1/2025	$40.47	$10.65	$9.75	$9.11	$0.00	$69.98
	6/1/2026	$41.91	$10.65	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.35	$10.65	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.80	$10.65	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.25	$10.65	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.75	$10.65	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.25	$10.65	$9.75	$9.11	$0.00	$78.76

Apprentice: LABORER

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.03	$10.15	$9.50	$9.11	$0.00	$53.79
2	70.00	$29.20	$10.15	$9.50	$9.11	$0.00	$57.96
3	80.00	$33.38	$10.15	$9.50	$9.11	$0.00	$62.14
4	90.00	$37.55	$10.15	$9.50	$9.11	$0.00	$66.31

Apprentice: LABORER

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.15	$10.65	$9.75	$9.11	$0.00	$54.66

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: LABORER

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
2	70.00	$29.34	$10.65	$9.75	$9.11	$0.00	$58.85
3	80.00	$33.53	$10.65	$9.75	$9.11	$0.00	$63.04
4	90.00	$37.72	$10.65	$9.75	$9.11	$0.00	$67.23

Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$40.47	$10.65	$9.75	$9.21	$0.00	$70.08
	6/1/2026	$41.91	$10.65	$9.75	$9.21	$0.00	$71.52
	12/1/2026	$43.35	$10.65	$9.75	$9.21	$0.00	$72.96

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.03	$10.15	$9.50	$9.21	$0.00	$53.89
2	70.00	$29.20	$10.15	$9.50	$9.21	$0.00	$58.06
3	80.00	$33.38	$10.15	$9.50	$9.21	$0.00	$62.24
4	90.00	$37.55	$10.15	$9.50	$9.21	$0.00	$66.41

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.15	$10.65	$9.75	$9.21	$0.00	$54.76
2	70.00	$29.34	$10.65	$9.75	$9.21	$0.00	$58.95
3	80.00	$33.53	$10.65	$9.75	$9.21	$0.00	$63.14
4	90.00	$37.72	$10.65	$9.75	$9.10	$0.00	$67.22

Apprentice to Journeyworker Ratio: 1:5

LABORER: CARPENTER TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$40.47	$10.65	$9.75	$9.11	$0.00	$69.98
	6/1/2026	$41.91	$10.65	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.35	$10.65	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.80	$10.65	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.25	$10.65	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.75	$10.65	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.25	$10.65	$9.75	$9.11	$0.00	$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$40.47	$10.65	$9.75	$9.11	$0.00	$69.98
	6/1/2026	$41.91	$10.65	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.35	$10.65	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.80	$10.65	$9.75	$9.11	$0.00	$74.31

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	$46.25	$10.65	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.75	$10.65	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.25	$10.65	$9.75	$9.11	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS LABORERS - ZONE 2	12/1/2025	$40.56	$10.65	$9.75	$9.65	$0.00	$70.61
	6/1/2026	$42.00	$10.65	$9.75	$9.65	$0.00	$72.05
	12/7/2026	$43.44	$10.65	$9.75	$9.65	$0.00	$73.49
	6/7/2027	$44.89	$10.65	$9.75	$9.65	$0.00	$74.94
	12/6/2027	$46.34	$10.65	$9.75	$9.65	$0.00	$76.39
	6/5/2028	$47.84	$10.65	$9.75	$9.65	$0.00	$77.89
	12/4/2028	$49.34	$10.65	$9.75	$9.65	$0.00	$79.39
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33
	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
LABORER: MULTI-TRADE TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$40.47	$10.65	$9.75	$9.11	$0.00	$69.98
	6/1/2026	$41.91	$10.65	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.35	$10.65	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.80	$10.65	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.25	$10.65	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.75	$10.65	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.25	$10.65	$9.75	$9.11	$0.00	$78.76
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER LABORERS LABORERS - ZONE 2	12/1/2025	$40.47	$10.65	$9.75	$9.11	$0.00	$69.98
	6/1/2026	$41.91	$10.65	$9.75	$9.11	$0.00	$71.42
	12/1/2026	$43.35	$10.65	$9.75	$9.11	$0.00	$72.86
	6/1/2027	$44.80	$10.65	$9.75	$9.11	$0.00	$74.31
	12/1/2027	$46.25	$10.65	$9.75	$9.11	$0.00	$75.76
	6/1/2028	$47.75	$10.65	$9.75	$9.11	$0.00	$77.26
	12/1/2028	$49.25	$10.65	$9.75	$9.11	$0.00	$78.76
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33
LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
MARBLE & TILE FINISHERS	2/1/2026	$52.08	$12.84	$15.57	$5.78	$0.00	$86.27
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	8/1/2026	$53.84	$12.84	$15.57	$5.78	$0.00	$88.03
	2/1/2027	$54.96	$12.84	$15.57	$5.78	$0.00	$89.15

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.04	$12.84	$15.57	$5.78	$0.00	$60.23
2	60.00	$31.25	$12.84	$15.57	$5.78	$0.00	$65.44
3	70.00	$36.46	$12.84	$15.57	$5.78	$0.00	$70.65
4	80.00	$41.66	$12.84	$15.57	$5.78	$0.00	$75.85
5	90.00	$46.87	$12.84	$15.57	$5.78	$0.00	$81.06

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.92	$12.84	$15.57	$5.78	$0.00	$61.11
2	60.00	$32.30	$12.84	$15.57	$5.78	$0.00	$66.49
3	70.00	$37.69	$12.84	$15.57	$5.78	$0.00	$71.88
4	80.00	$43.07	$12.84	$15.57	$5.78	$0.00	$77.26
5	90.00	$48.46	$12.84	$15.57	$5.78	$0.00	$82.65

Apprentice to Journeyworker Ratio: 1:5

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	2/1/2026	$67.97	$12.84	$15.57	$7.99	$0.00	$104.37
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	8/1/2026	$70.17	$12.84	$15.57	$7.99	$0.00	$106.57
	2/1/2027	$71.57	$12.84	$15.57	$7.99	$0.00	$107.97

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.99	$12.84	$15.57	$7.99	$0.00	$70.39
2	60.00	$40.78	$12.84	$15.57	$7.99	$0.00	$77.18

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	70.00	$47.58	$12.84	$15.57	$7.99	$0.00	$83.98
4	80.00	$54.38	$12.84	$15.57	$7.99	$0.00	$90.78
5	90.00	$61.17	$12.84	$15.57	$7.99	$0.00	$97.57

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.09	$12.84	$15.57	$7.99	$0.00	$71.49
2	60.00	$42.10	$12.84	$15.57	$7.99	$0.00	$78.50
3	70.00	$49.12	$12.84	$15.57	$7.99	$0.00	$85.52
4	80.00	$56.14	$12.84	$15.57	$7.99	$0.00	$92.54
5	90.00	$63.15	$12.84	$15.57	$7.99	$0.00	$99.55

Apprentice to Journeyworker Ratio: 1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES)	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MECHANICS MAINTENANCE	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MILLWRIGHT (Zone 1)	1/5/2026	$52.97	$10.08	$11.47	$10.25	$0.00	$84.77
MILLWRIGHTS LOCAL 1121							
MILLWRIGHTS LOCAL 1121 - Zone 1							

Apprentice: MILLWRIGHT (Zone 1)

Effective Date: 1/5/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$29.13	$10.08	$0.00	$5.64	$0.00	$44.85
2	65.00	$34.43	$10.08	$0.00	$6.66	$0.00	$51.17
3	75.00	$39.73	$10.08	$11.47	$7.69	$0.00	$68.97
4	85.00	$45.02	$10.08	$11.47	$8.71	$0.00	$75.28

Apprentice Notes

Step 1&2 Appr. indentured after 1/6/2020 receive no pension,

Apprentice to Journeyworker Ratio: 1:4

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
MORTAR MIXER LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$25.68	$16.05	$13.25	$3.25	$0.00	$58.23
	6/1/2026	$26.27	$16.05	$13.25	$3.25	$0.00	$58.82
	12/1/2026	$26.94	$16.05	$13.25	$3.25	$0.00	$59.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$31.65	$16.05	$13.25	$3.25	$0.00	$64.20
	6/1/2026	$32.37	$16.05	$13.25	$3.25	$0.00	$64.92
	12/1/2026	$33.17	$16.05	$13.25	$3.25	$0.00	$65.72
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$59.56	$10.35	$12.00	$12.50	$0.00	$94.41

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$50.46	$10.35	$12.00	$12.60	$0.00	$85.41

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$25.23	$10.35	$0.00	$0.00	$0.00	$35.58
2	55.00	$27.75	$10.35	$0.00	$6.93	$0.00	$45.03
3	60.00	$30.28	$10.35	$0.00	$7.56	$0.00	$48.19
4	65.00	$32.80	$10.35	$0.00	$8.19	$0.00	$51.34
5	70.00	$35.32	$10.35	$12.00	$8.82	$0.00	$66.49
6	75.00	$37.85	$10.35	$12.00	$9.45	$0.00	$69.65
7	80.00	$40.37	$10.35	$12.00	$10.08	$0.00	$72.80
8	90.00	$45.41	$10.35	$12.00	$11.34	$0.00	$79.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$48.52	$10.35	$12.00	$12.60	$0.00	$83.47

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.26	$10.35	$0.00	$0.00	$0.00	$34.61
2	55.00	$26.69	$10.35	$0.00	$6.93	$0.00	$43.97
3	60.00	$29.11	$10.35	$0.00	$7.56	$0.00	$47.02
4	65.00	$31.54	$10.35	$0.00	$8.19	$0.00	$50.08
5	70.00	$33.96	$10.35	$12.00	$8.82	$0.00	$65.13
6	75.00	$36.39	$10.35	$12.00	$9.45	$0.00	$68.19
7	80.00	$38.82	$10.35	$12.00	$10.08	$0.00	$71.25
8	90.00	$43.67	$10.35	$12.00	$11.34	$0.00	$77.36

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$49.06	$10.35	$12.00	$12.60	$0.00	$84.01

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
2	55.00	$26.98	$10.35	$0.00	$6.93	$0.00	$44.26
3	60.00	$29.44	$10.35	$0.00	$7.56	$0.00	$47.35

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER / TAPER (BRUSH, NEW) *							
Effective Date: 1/1/2026							
Step / Percent		**Apprentice Base Wage**					
4 / 65.00		$31.89	$10.35	$0.00	$8.19	$0.00	$50.43
5 / 70.00		$34.34	$10.35	$12.00	$8.82	$0.00	$65.51
6 / 75.00		$36.80	$10.35	$12.00	$9.45	$0.00	$68.60
7 / 80.00		$39.25	$10.35	$12.00	$10.08	$0.00	$71.68
8 / 90.00		$44.15	$10.35	$12.00	$11.34	$0.00	$77.84
Apprentice to Journeyworker Ratio: 1:1							
PAINTER / TAPER (BRUSH, REPAINT) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$47.12	$10.35	$12.00	$12.60	$0.00	$82.07
Apprentice: PAINTER / TAPER (BRUSH, REPAINT)							
Effective Date: 1/1/2026							
Step / Percent		**Apprentice Base Wage**					
1 / 50.00		$23.56	$10.35	$0.00	$0.00	$0.00	$33.91
2 / 55.00		$25.92	$10.35	$0.00	$6.93	$0.00	$43.20
3 / 60.00		$28.27	$10.35	$0.00	$7.56	$0.00	$46.18
4 / 65.00		$30.63	$10.35	$0.00	$8.19	$0.00	$49.17
5 / 70.00		$32.98	$10.35	$12.00	$8.82	$0.00	$64.15
6 / 75.00		$35.34	$10.35	$12.00	$9.45	$0.00	$67.14
7 / 80.00		$37.70	$10.35	$12.00	$10.08	$0.00	$70.13
8 / 90.00		$42.41	$10.35	$12.00	$11.34	$0.00	$76.10
Apprentice to Journeyworker Ratio: 1:1							
PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$40.47	$10.65	$9.75	$9.21	$0.00	$70.08
	6/1/2026	$41.91	$10.65	$9.75	$9.21	$0.00	$71.52
	12/1/2026	$43.35	$10.65	$9.75	$9.21	$0.00	$72.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$41.88	$15.41	$21.78	$0.00	$0.00	$79.07
	6/1/2026	$42.88	$15.41	$21.78	$0.00	$0.00	$80.07
	8/1/2026	$42.88	$15.91	$21.78	$0.00	$0.00	$80.57
	12/1/2026	$42.88	$15.91	$23.52	$0.00	$0.00	$82.31
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PIPEFITTER & STEAMFITTER PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
	3/1/2026	$70.58	$13.95	$14.00	$9.55	$0.00	$108.08

Apprentice: PILE DRIVER

Effective Date: 8/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$25.11	$10.08	$0.00	$2.53	$0.00	$37.72
2	55.00	$30.68	$10.08	$0.00	$5.07	$0.00	$45.83
3	70.00	$39.05	$10.08	$11.62	$7.60	$0.00	$68.35
4	80.00	$44.63	$10.08	$11.62	$10.14	$0.00	$76.47

Apprentice to Journeyworker Ratio: 1:5

Apprentice: PIPEFITTER & STEAMFITTER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$27.63	$13.45	$13.75	$9.30	$0.00	$64.13
2	45.00	$31.09	$13.45	$13.75	$9.30	$0.00	$67.59
3	60.00	$41.45	$13.45	$13.75	$9.30	$0.00	$77.95
4	70.00	$48.36	$13.45	$13.75	$9.30	$0.00	$84.86
5	80.00	$55.26	$13.45	$13.75	$9.30	$0.00	$91.76

Apprentice: PIPEFITTER & STEAMFITTER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$28.23	$13.95	$0.30	$9.55	$0.00	$52.03
2	45.00	$31.76	$13.95	$14.00	$9.55	$0.00	$69.26
3	60.00	$42.35	$13.95	$14.00	$9.55	$0.00	$79.85
4	70.00	$49.41	$13.95	$14.00	$9.55	$0.00	$86.91
5	80.00	$56.46	$13.95	$14.00	$9.55	$0.00	$93.96

Apprentice to Journeyworker Ratio: 1:3

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PIPELAYER LABORERS LABORERS - ZONE 2	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PIPELAYER (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

PLUMBERS & GASFITTERS	9/1/2025	$71.74	$14.32	$12.61	$8.00	$0.00	$106.67
PLUMBERS & GASFITTERS LOCAL 12	3/2/2026	$73.89	$14.32	$12.61	$8.00	$0.00	$108.82
PLUMBERS & GASFITTERS LOCAL 12	8/31/2026	$76.04	$14.32	$12.61	$8.00	$0.00	$110.97
	3/1/2027	$78.19	$14.32	$12.61	$8.00	$0.00	$113.12
	8/30/2027	$80.34	$14.32	$12.61	$8.00	$0.00	$115.27
	2/28/2028	$82.54	$14.32	$12.61	$8.00	$0.00	$117.47
	9/4/2028	$84.74	$14.32	$12.61	$8.00	$0.00	$119.67
	3/5/2029	$86.94	$14.32	$12.61	$8.00	$0.00	$121.87
	9/3/2029	$89.14	$14.32	$12.61	$8.00	$0.00	$124.07
	3/4/2030	$91.09	$14.32	$12.61	$8.00	$0.00	$126.02

Apprentice: PLUMBERS & GASFITTERS

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.11	$14.32	$4.61	$2.80	$0.00	$46.84
2	40.00	$28.70	$14.32	$5.22	$3.20	$0.00	$51.44
3	55.00	$39.46	$14.32	$7.07	$4.40	$0.00	$65.25
4	65.00	$46.63	$14.32	$8.30	$5.20	$0.00	$74.45
5	75.00	$53.81	$14.32	$9.53	$6.00	$0.00	$83.66

Apprentice: PLUMBERS & GASFITTERS

Effective Date: 3/2/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.86	$14.32	$4.61	$2.80	$0.00	$47.59
2	40.00	$29.56	$14.32	$5.22	$3.20	$0.00	$52.30
3	55.00	$40.64	$14.32	$7.07	$4.40	$0.00	$66.43
4	65.00	$48.03	$14.32	$8.30	$5.20	$0.00	$75.85
5	75.00	$55.42	$14.32	$9.53	$6.00	$0.00	$85.27

Apprentice to Journeyworker Ratio: 1:2

PNEUMATIC CONTROLS (TEMP.)	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
PIPEFITTERS LOCAL 537	3/1/2026	$70.58	$13.95	$14.00	$9.55	$0.00	$108.08
PIPEFITTERS LOCAL 537							

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
LABORERS	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
LABORERS - ZONE 2	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33
LABORERS	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWDERMAN & BLASTER	12/1/2025	$41.47	$10.65	$9.75	$9.11	$0.00	$70.98
LABORERS	6/1/2026	$42.91	$10.65	$9.75	$9.11	$0.00	$72.42
LABORERS - ZONE 2	12/1/2026	$44.35	$10.65	$9.75	$9.11	$0.00	$73.86
	6/1/2027	$45.80	$10.65	$9.75	$9.11	$0.00	$75.31
	12/1/2027	$47.25	$10.65	$9.75	$9.11	$0.00	$76.76
	6/1/2028	$48.75	$10.65	$9.75	$9.11	$0.00	$78.26
	12/1/2028	$50.25	$10.65	$9.75	$9.11	$0.00	$79.76
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.65	$9.75	$9.21	$0.00	$71.08
LABORERS	6/1/2026	$42.91	$10.65	$9.75	$9.21	$0.00	$72.52
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$44.35	$10.65	$9.75	$9.21	$0.00	$73.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWER SHOVEL/DERRICK/TRENCHING MACHINE	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE)	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (DEWATERING, OTHER)	12/1/2025	$37.97	$16.05	$13.25	$3.25	$0.00	$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	$38.83	$16.05	$13.25	$3.25	$0.00	$71.38
OPERATING ENGINEERS LOCAL 4	12/1/2026	$39.78	$16.05	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
READY MIX CONCRETE DRIVERS after 4/30/12	8/1/2022	$30.40	$11.91	$15.25	$0.00	$0.00	$57.56
(Drivers Hired After 4/30/2012)							
TEAMSTERS 25 (Suburban) - Aggregate							
TEAMSTERS 25 (Suburban) - Aggregate							
READY-MIX CONCRETE DRIVER	8/1/2022	$30.50	$11.91	$15.25	$0.00	$0.00	$57.66
TEAMSTERS 25 (Suburban) - Aggregate							
TEAMSTERS 25 (Suburban) - Aggregate							
RECLAIMERS	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS LABORERS - ZONE 2	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) ROOFERS LOCAL 33 ROOFERS LOCAL 33	2/1/2026	$54.78	$13.28	$12.67	$9.03	$0.00	$89.76

Apprentice: ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.39	$13.28	$6.52	$9.03	$0.00	$56.22
2	60.00	$32.87	$13.28	$12.67	$9.03	$0.00	$67.85
3	65.00	$35.61	$13.28	$12.67	$9.03	$0.00	$70.59
4	75.00	$41.09	$13.28	$12.67	$9.03	$0.00	$76.07
5	85.00	$46.56	$13.28	$12.67	$9.03	$0.00	$81.54

Apprentice Notes

** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1

Apprentice to Journeyworker Ratio: 1:5

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33 ROOFERS LOCAL 33	2/1/2026	$55.03	$13.28	$12.67	$9.03	$0.00	$90.01
For apprentice rates see "Apprentice- ROOFER"							
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09

Apprentice: SHEETMETAL WORKER

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	$26.43	$14.91	$6.19	$0.00	$0.00	$47.53
2	42.00	$26.43	$14.91	$6.19	$0.00	$0.00	$47.53
3	47.00	$29.58	$14.91	$10.93	$1.25	$1.62	$58.29
4	47.00	$29.58	$14.91	$10.93	$1.25	$1.62	$58.29

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: SHEETMETAL WORKER							
Effective Date: 2/1/2026							
Step / Percent		**Apprentice Base Wage**					
5 / 52.00		$32.72	$14.91	$11.66	$1.50	$1.74	$62.53
6 / 52.00		$32.72	$14.91	$11.66	$1.75	$1.75	$62.79
7 / 60.00		$37.76	$14.91	$12.84	$2.00	$1.93	$69.44
8 / 65.00		$40.90	$14.91	$13.58	$2.25	$2.04	$73.68
9 / 75.00		$47.20	$14.91	$15.06	$2.75	$2.28	$82.20
10 / 85.00		$53.49	$14.91	$16.53	$2.75	$2.49	$90.17
Apprentice to Journeyworker Ratio: 1:4							
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$42.34	$15.41	$21.78	$0.00	$0.00	$79.53
	6/1/2026	$43.34	$15.41	$21.78	$0.00	$0.00	$80.53
	8/1/2026	$43.34	$15.91	$21.78	$0.00	$0.00	$81.03
	12/1/2026	$43.34	$15.91	$23.52	$0.00	$0.00	$82.77
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$42.63	$15.41	$21.78	$0.00	$0.00	$79.82
	6/1/2026	$43.63	$15.41	$21.78	$0.00	$0.00	$80.82
	8/1/2026	$43.63	$15.91	$21.78	$0.00	$0.00	$81.32
	12/1/2026	$43.63	$15.91	$23.52	$0.00	$0.00	$83.06
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	1/1/2026	$72.05	$13.45	$7.45	$18.25	$0.00	$111.20
Apprentice: SPRINKLER FITTER							
Effective Date: 1/1/2026							
Step / Percent		**Apprentice Base Wage**					
1 / 35.00		$25.22	$13.45	$13.84	$0.00	$0.00	$52.51
2 / 40.00		$28.82	$13.45	$14.75	$0.00	$0.00	$57.02
3 / 45.00		$32.42	$13.45	$15.67	$0.00	$0.00	$61.54
4 / 50.00		$36.03	$13.45	$16.57	$0.00	$0.00	$66.05
5 / 55.00		$39.63	$13.45	$17.49	$0.00	$0.00	$70.57
6 / 60.00		$43.23	$13.45	$18.40	$0.00	$0.00	$75.08
7 / 65.00		$46.83	$13.45	$19.32	$0.00	$0.00	$79.60
8 / 70.00		$50.44	$13.45	$20.22	$0.00	$0.00	$84.11
9 / 75.00		$54.04	$13.45	$21.15	$0.00	$0.00	$88.64
10 / 80.00		$57.64	$13.45	$22.05	$0.00	$0.00	$93.14
Apprentice Notes							
Apprentice entered prior 9/30/10:							
Apprentice to Journeyworker Ratio: 1:3							
STEAM BOILER OPERATOR	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TELECOMMUNICATION TECHNICIAN	9/1/2025	$52.94	$13.00	$13.97	$6.98	$0.00	$86.89
TELECOMMUNICATION TECHNICIAN	3/1/2026	$53.49	$13.00	$14.23	$7.20	$0.00	$87.92
ELECTRICIANS LOCAL 103	9/1/2026	$55.02	$13.00	$14.28	$7.20	$0.00	$89.50
ELECTRICIANS LOCAL 103	3/1/2027	$55.98	$13.00	$14.31	$7.20	$0.00	$90.49
	9/1/2027	$57.50	$13.00	$14.36	$7.20	$0.00	$92.06
	3/1/2028	$58.46	$13.00	$14.38	$7.20	$0.00	$93.04

For apprentice rates and ratios see "Apprentice- ELECTRICIAN"

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.82	$13.00	$0.71	$0.00	$0.00	$37.53
2	45.00	$23.82	$13.00	$0.71	$0.00	$0.00	$37.53
3	50.00	$26.47	$13.00	$13.17	$3.49	$0.00	$56.13
4	50.00	$26.47	$13.00	$13.17	$3.49	$0.00	$56.13
5	55.00	$29.12	$13.00	$13.25	$3.84	$0.00	$59.21
6	60.00	$31.76	$13.00	$13.33	$4.19	$0.00	$62.28
7	65.00	$34.41	$13.00	$13.41	$4.54	$0.00	$65.36
8	70.00	$37.06	$13.00	$13.49	$4.89	$0.00	$68.44
9	75.00	$39.71	$13.00	$13.57	$5.24	$0.00	$71.52
10	80.00	$42.35	$13.00	$13.65	$5.58	$0.00	$74.58

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$24.07	$13.00	$0.72	$0.00	$0.00	$37.79
2	45.00	$24.07	$13.00	$0.72	$0.00	$0.00	$37.79
3	50.00	$26.75	$13.00	$13.43	$3.60	$0.00	$56.78
4	50.00	$26.75	$13.00	$13.43	$3.60	$0.00	$56.78
5	55.00	$29.42	$13.00	$13.51	$3.96	$0.00	$59.89
6	60.00	$32.09	$13.00	$13.59	$4.32	$0.00	$63.00
7	65.00	$34.77	$13.00	$13.67	$4.68	$0.00	$66.12
8	70.00	$37.44	$13.00	$13.75	$5.04	$0.00	$69.23
9	75.00	$40.12	$13.00	$13.83	$5.40	$0.00	$72.35
10	80.00	$42.79	$13.00	$13.91	$5.76	$0.00	$75.46

Apprentice to Journeyworker Ratio: 1:1

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS	2/1/2026	$66.89	$12.84	$15.57	$8.02	$0.00	$103.32
BRICKLAYERS LOCAL 3	8/1/2026	$69.09	$12.84	$15.57	$8.02	$0.00	$105.52
BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2027	$70.49	$12.84	$15.57	$8.02	$0.00	$106.92

Apprentice: TERRAZZO FINISHERS

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.45	$12.84	$15.57	$8.02	$0.00	$69.88
2	60.00	$40.13	$12.84	$15.57	$8.02	$0.00	$76.56
3	70.00	$46.82	$12.84	$15.57	$8.02	$0.00	$83.25
4	80.00	$53.51	$12.84	$15.57	$8.02	$0.00	$89.94
5	90.00	$60.20	$12.84	$15.57	$8.02	$0.00	$96.63

Apprentice: TERRAZZO FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.55	$12.84	$15.57	$8.02	$0.00	$70.98
2	60.00	$41.45	$12.84	$15.57	$8.02	$0.00	$77.88
3	70.00	$48.36	$12.84	$15.57	$8.02	$0.00	$84.79
4	80.00	$55.27	$12.84	$15.57	$8.02	$0.00	$91.70
5	90.00	$62.18	$12.84	$15.57	$8.02	$0.00	$98.61

Apprentice to Journeyworker Ratio: 1:5

TEST BORING DRILLER	12/1/2025	$51.95	$10.65	$9.75	$9.80	$0.00	$82.15
LABORERS	6/1/2026	$53.50	$10.65	$9.75	$9.80	$0.00	$83.70
LABORERS - FOUNDATION AND MARINE	12/1/2026	$55.00	$10.65	$9.75	$9.80	$0.00	$85.20

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	12/1/2025	$48.07	$10.65	$9.75	$9.80	$0.00	$78.27
LABORERS	6/1/2026	$49.62	$10.65	$9.75	$9.80	$0.00	$79.82
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.12	$10.65	$9.75	$9.80	$0.00	$81.32

For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER	12/1/2025	$47.95	$10.65	$9.75	$9.80	$0.00	$78.15
LABORERS	6/1/2026	$49.50	$10.65	$9.75	$9.80	$0.00	$79.70
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.00	$10.65	$9.75	$9.80	$0.00	$81.20

For apprentice rates see "Apprentice- LABORER"

TRACTORS/PORTABLE STEAM GENERATORS	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TRAILERS FOR EARTH MOVING EQUIPMENT	12/1/2025	$42.92	$15.41	$21.78	$0.00	$0.00	$80.11
TEAMSTERS JOINT COUNCIL NO. 10	6/1/2026	$43.92	$15.41	$21.78	$0.00	$0.00	$81.11

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	8/1/2026	$43.92	$15.91	$21.78	$0.00	$0.00	$81.61
	12/1/2026	$43.92	$15.91	$23.52	$0.00	$0.00	$83.35
TUNNEL WORK - COMPRESSED AIR	12/1/2025	$60.18	$10.65	$9.75	$10.25	$0.00	$90.83
LABORERS LABORERS (COMPRESSED AIR)	6/1/2026	$61.73	$10.65	$9.75	$10.25	$0.00	$92.38
	12/1/2026	$63.23	$10.65	$9.75	$10.25	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	12/1/2025	$62.18	$10.65	$9.75	$10.25	$0.00	$92.83
LABORERS LABORERS (COMPRESSED AIR)	6/1/2026	$63.73	$10.65	$9.75	$10.25	$0.00	$94.38
	12/1/2026	$65.23	$10.65	$9.75	$10.25	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR	12/1/2025	$52.25	$10.65	$9.75	$10.25	$0.00	$82.90
LABORERS LABORERS (FREE AIR TUNNEL)	6/1/2026	$53.80	$10.65	$9.75	$10.25	$0.00	$84.45
	12/1/2026	$55.30	$10.65	$9.75	$10.25	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/1/2025	$54.25	$10.65	$9.75	$10.25	$0.00	$84.90
LABORERS LABORERS (FREE AIR TUNNEL)	6/1/2026	$55.80	$10.65	$9.75	$10.25	$0.00	$86.45
	12/1/2026	$57.30	$10.65	$9.75	$10.25	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL	12/1/2025	$42.34	$15.41	$21.78	$0.00	$0.00	$79.53
TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2026	$43.34	$15.41	$21.78	$0.00	$0.00	$80.53
	8/1/2026	$43.34	$15.91	$21.78	$0.00	$0.00	$81.03
	12/1/2026	$43.34	$15.91	$23.52	$0.00	$0.00	$82.77
WAGON DRILL OPERATOR	12/1/2025	$40.72	$10.65	$9.75	$9.11	$0.00	$70.23
LABORERS LABORERS - ZONE 2	6/1/2026	$42.16	$10.65	$9.75	$9.11	$0.00	$71.67
	12/1/2026	$43.60	$10.65	$9.75	$9.11	$0.00	$73.11
	6/1/2027	$45.05	$10.65	$9.75	$9.11	$0.00	$74.56
	12/1/2027	$46.50	$10.65	$9.75	$9.11	$0.00	$76.01
	6/1/2028	$48.00	$10.65	$9.75	$9.11	$0.00	$77.51
	12/1/2028	$49.50	$10.65	$9.75	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	12/1/2025	$40.72	$10.65	$9.75	$9.21	$0.00	$70.33
LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	$42.16	$10.65	$9.75	$9.21	$0.00	$71.77
	12/1/2026	$43.60	$10.65	$9.75	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WASTE WATER PUMP OPERATOR	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
WATER METER INSTALLER	9/1/2025	$71.74	$14.32	$12.61	$8.00	$0.00	$106.67
PLUMBERS & GASFITTERS LOCAL 12 PLUMBERS & GASFITTERS LOCAL 12	3/2/2026	$73.89	$14.32	$12.61	$8.00	$0.00	$108.82
	8/31/2026	$76.04	$14.32	$12.61	$8.00	$0.00	$110.97

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	3/1/2027	$78.19	$14.32	$12.61	$8.00	$0.00	$113.12
	8/30/2027	$80.34	$14.32	$12.61	$8.00	$0.00	$115.27
	2/2/2028	$82.54	$14.32	$12.61	$8.00	$0.00	$117.47
	9/4/2028	$84.74	$14.32	$12.61	$8.00	$0.00	$119.67
	3/5/2029	$86.94	$14.32	$12.61	$8.00	$0.00	$121.87
	9/3/2029	$89.14	$14.32	$12.61	$8.00	$0.00	$124.07
	3/4/2030	$91.09	$14.32	$12.61	$8.00	$0.00	$126.02

For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"

Additional Apprentice Information

All apprentices must be registered with the Division of Apprenticeship Training(DAS) in accordance with M.G.L.c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L.c. 149, §§ 26-27D.

Apprentice ratios are established by DAS pursuant to M.G.L.c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements(CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate.

Parties having questions regarding what ratio to use should contact DAS.

LOCATION AND SCOPE OF WORK

STREET RESURFACING CONTRACT # 26-44

1. DESCRIPTION OF THE PROJECT

The work for this project includes, but is not limited to, reclamation, grading, cold planing and/or relocating sections of the existing roadway, earth excavation, installation of drains, adjusting/ rebuilding drainage, sewer, and water structures, installation of hot mix asphalt (HMA) pavement, HMA berm, granite curbing and edging, handicap ramps, Concrete and HMA sidewalk and driveways installation and replacement, landscaping and other miscellaneous work.

2. LOCATION OF PROJECT

The work is to be performed in various areas in the Town of Lexington including, but not limited to, locations as shown in subsection 3, Scope of Work.

3. SCOPE OF WORK

The work under this contract consists of furnishing all necessary labor, materials, equipment and services to complete roadway improvements as described herein under the STREET RESURFACING CONTRACT #26-44. The work includes but is not limited to, HMA leveling, patching and paving of roadways, driveway aprons and sidewalks, adjusting and/or building sewer and drainage structures, adjusting water and gas valve boxes, street sweeping, roadway reclamation, cold-planing, hot mix asphalt (HMA) overlays, excavation, backfilling, grading HMA berm, placing new drainage structures, landscaping, and other related miscellaneous work in the Town of Lexington, and all incidental work necessary to complete the work as shown on the plans or described herein.

All work done under this contract shall be in conformance with the Commonwealth of Massachusetts Department of Public Works **STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 2025 (Blue Book),** 1992 AASHTO SPECIFICATIONS FOR HIGHWAYS AND BRIDGES WITH INTERIMS THROUGH 1994, MHD BRIDGE MANUAL PART I AND PART II, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-89) OR LATER, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION, THE DECEMBER 2016 MASSDOT CONSTRUCTION STANDARD DETAILS, , THE AMERICAN WATER WORKS ASSOCIATION STANDARD FOR THE INSTALLATION OF DUCTILE-IRON WATER MAINS AND THEIR APPURTENANCES, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE LATEST PUBLIC RIGHTS OF WAY GUIDELINES FOR PEDESTRIAN FACILITIES (PROWAG), the **PLANS** and these **SPECIAL PROVISIONS** and attached **CONSTRUCTION DETAILS**.

The following is the anticipated scope of work based on the construction shown on the plans. The engineer has the authority to adjust these as they see fit;

- In overlay areas up to 1.5 inches of leveling course may be installed prior to placement of 1.5 inches of top.
- In cold plane and overlay areas, up to 4 inches of existing Hot Mix Asphalt will be removed by cold planing. Up to 1.5 inches of leveling course will be installed prior to placement of 1.5 inches of top.
- In overlay areas, up to 1.5 inches of HMA wearing course, will be placed.
- In reclaimed areas, 2.5 inches of intermediate course (binder) and 1.5 inches of wearing course, will be placed. The depth of reclamation can be up to 15” in depth from the existing pavement

surface. It is anticipated that material removal will be necessary to accommodate existing grades and future overlay work.

- Tack coat will be used between all HMA layers.
- The limit of work may extend at least 20 feet into all side roads. The actual limits of work extending into side roads will be marked out prior to beginning work.
- Patching may be necessary prior to paving roadways and will be determined and marked out by the engineer
- The contractor will be responsible for removing all material from sewer and drainage structures at the project closeout at no expense to the town. The contractor will be paid to clean all structures at the beginning of work at unit pricing included in this contract.
- Street sweeping shall be by mechanical street sweeper vehicle to clear the paved surface of all debris, to the extent as determined by the engineer.
- Use of the services at the towns composting facility can be negotiated directly with the Environmental Services Division. Please contact Robert M. Beaudoin, Superintendent of Environmental Services, at 781-274-8334. For leasing of space, receiving of material, and purchasing of loam and gravel. The contract makes no guarantee that services of this facility will be available.
- The hours of operation will be restricted to a normal eight-hour day (7:00 AM to 3:00 PM) Monday through Friday. Modifications to this schedule will be discussed on a case by case basis with the resident engineer. All work will be suspended by 5:00 PM, per Town by-law

§ 80-4 Prohibition of excessive or unwarranted noise.

- Additional work outside of that shown on the attached map maybe added (or work deleted) in other areas of the town which may include driveway aprons, patching, etc.…
- **The contractor will provide all required work zone and detour signs and barricades.**
- **It is the responsibility of the General Contractor to obtain a staging area**

PROPOSAL TO
TOWN OF LEXINGTON, MASSACHUSETTS

STREET RESURFACING CONTRACT # 26-44

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals. The undersigned further certifies that the only persons or parties interested in this proposal as principals are as stated, that he/she has carefully examined the Information for Bidders, Contract, Specifications, Contract Drawings, all as prepared by the office of the Town Engineer; that he/she has informed himself/herself fully in regard to all conditions pertaining to the work and the place where it is to be done, and from them the undersigned makes this Proposal. These prices shall cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

If written notice of the acceptance of this bid is mailed, or otherwise delivered to the undersigned within 30 days, excluding Saturdays, Sundays, and legal holidays, after the date of opening the bid, the undersigned will within five days, excluding Saturdays, Sundays, and legal holidays, after the date of such notification, execute and deliver a Contract in the form attached thereto, together with a performance bond, and payment bond, each of a surety company qualified to do business under the laws of the State and furnished by a company satisfactory to the Town. The premiums for these bonds shall be paid by the General Contractor and shall be included in the Contract price. The Undersigned further agrees that the bid security accompanying this Proposal shall become the property of the Town, if the bidder fails to execute the Contract as stated above.

The undersigned hereby agrees to commence work under this Contract within 10 working days of the execution of the Contract. The bidder acknowledges receipt of the following addenda numbered:

_____

_____

_____

In accordance with the above understanding, the undersigned proposes to do all of the work, furnish all of the materials, and complete the work in its entirety in the manner and under the conditions required at the prices listed as follows:
I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

_____
Signature of Individual* By: Corporate Office or
Corporate Name (Mandatory, if Applicable)
(Mandatory)

_____
Social Security # ** (Voluntary) or Federal
Identification Number

* Approval of a contract or other agreement will not be granted unless this certification clause is signed by the applicant.

** Your social security number will be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Bidders who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended. This request is made under the authority of Mass. G.L. c. 62C s. 49A.

BID FORM

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
*101.	0.3	CLEARING AND GRUBBING AT PER ACRE		
*102.12	5	TREE TRIMMING AT PER EACH		
*120.1	925	UNCLASSIFIED EXCAVATION AT PER CUBIC YARD		
*120.11	470	EXCAVATION FOR PATCHING AT PER CUBIC YARD		
120.13	360	UNCLASSIFIED EXCAVATION OF EXCESS RECLAIMED MATERIAL AT PER CUBIC YARD		
*121.	16	CLASS A ROCK EXCAVATION AT PER CUBIC YARD		
130.00	40	STREET SWEEPING (4 HOUR MINIMUM) AT PER HOUR		
*141.1	3	TEST PIT FOR EXPLORATION AT PER CUBIC YARD		
*152.00	70	PROCESS GRAVEL AT PER CUBIC YARD		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
*153.	100	CONTROLLED DENSITY FILL (M4.08.0 TYPE 2E) AT PER CUBIC YARD		
170.	3140	FINE GRADING & COMPACTING SUBGRADE AREAS AT PER SQUARE YARD		
*201.	5	CATCH BASIN WITH A 4 FOOT SUMP AT PER EACH		
*202.	1	MANHOLE AT PER EACH		
*203.	1	SPECIAL CATCH BASIN AT PER EACH		
*204.	1	GUTTER INLET AT PER EACH		
*205.	1	LEACHING BASIN AT PER EACH		
*220.	115	STRUCTURES ADJUSTED AT PER EACH		
220.1	63	CATCH BASINS AND/OR MANHOLES LOWERED AND PLATED AT PER EACH		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
220.15	51	WATER GATES & GAS GATES LOWERED & PLATED AT PER EACH		
*220.20	21	DRAINAGE STRUCTURES REBUILT AT PER VERTICAL FOOT		
*220.30	1	DRAINAGE STRUCTURE CHANGE IN TYPE AT PER EACH		
*220.50	1	STRUCTURE REMODELED AT PER EACH		
*221.00	13	FRAME & COVER AT PER EACH		
*222.00	10	FRAME & GRATE AT PER EACH		
*222.1	12	FRAME & GRATE CASCADE TYPE AT PER EACH		
227.30	26	REMOVAL AND DISPOSAL OF DRAINAGE STRUCTURES SEDIMENTS AT PER CUBIC YARD		
*234.12	10	12” DRAINAGE PIPE – OPTION AT PER LINEAR FOOT		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
238.12	10	12" DUCTILE IRON PIPE AT PER LINEAR FOOT		
244.12	35	12" REINFORCED CONCRETE PIPE CLASS V AT PER LINEAR FOOT		
*252.12	10	12" CORRUGATED PLASTIC PIPE AT PER LINEAR FOOT		
*272.00	35	REMOVAL AND DISPOSAL OF PIPE At PER LINEAR FOOT		
*285.	4	PHOSPHORUS INFILTRATION TRENCH AT PER EACH		
357.00	32	GATE BOX (RISER 18" OR >) AT PER EACH		
358.00	51	GATE BOX ADJUSTED AT PER EACH		
359.00	10	GATE BOX REMOVED AND DISPOSED AT PER EACH		
*390.02	2	SPRINKLER SYSTEM MODIFIED PER EACH		
*402.00	10	DENSE GRADED CRUSHED STONE FOR SUB-BASE AT PER CUBIC YARD		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
*402.11	5	DENSE GRADED CRUSHED STONE FOR SHOULDER PLACEMENT AT PER CUBIC YARD		
403	3150	RECLAIMED BASE COURSE AT PER SQUARE YARD		
403.1	20	CRUSHED STONE FOR BLENDING AT PER TON		
*415.11	9	PAVEMENT MILLING (KEYWAYS) AT PER SQUARE YARD		
415.30	26480	PAVEMENT MICRO-MILLING AT PER SQUARE YARD		
415.50	30	REMOVAL AND DISPOSAL OF FABRIC ENCOUNTERED BY MICRO MILLING AT PER MAN HOUR		
440.00	1520	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL AT PER POUND		
441.00	3150	LIQUID CALCIUM CHLORIDE FOR BLENDING AT PER GALLON		
451.00	20	HOT MIX ASPHALT FOR PATCHING AT PER TON		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
452.00	2320	ASPHALT EMULSION FOR TACK COAT AT PER GALLON		
453.00	11100	HOT MIX ASPHALT JOINT ADHESIVE AT PER LINEAR FOOT		
460.22	2700	SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) AT PER TON		
460.31	440	SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) AT PER TON		
460.52	520	SUPERPAVE LEVELING COURSE 9.5 (SLC-9.5) AT PER TON		
472	10	TEMPORARY ASPHALT PATCHING AT PER TON		
480.20	1310	PAVEMENT CRACK SEALING HIGH PERFORMANCE CRACK SEALER AT PER GALLON		
482.30	9	SAW-CUTTING (INCLUSIVE IN SOME ITEMS) AT PER LINEAR FEET		
504.00	9	GRANITE CURB TYPE VA4 - STRAIGHT AT PER LINEAR FEET		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
504.10	6	GRANITE CURB TYPE VA4 - CURVED AT PER LINEAR FOOT		
509.	66	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMP – STRAIGHT AT PER LINEAR FOOT		
509.1	3	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMP - CURVED AT PER LINEAR FOOT		
514.00	11	GRANITE CURB TYPE INLET - STRAIGHT AT PER EACH		
570.2	8170	HOT MIX ASPHALT CURB TYPE - 2 AT PER LINEAR FOOT		
580	15	CURB REMOVED AND RESET AT PER LINEAR FOOT		
581	2	CURB INLET REMOVE AND RESET AT PER EACH		
594	10	CURB REMOVED AND DISCARDED AT PER LINEAR FEET		
595.00	1	CURB INLET REMOVED & DISCARDED AT PER EACH		

PAGE SUBTOTAL: _____

***Indeterminate - quantity assumed for bid comparison only.**

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
697.10	4680	COMPOST SOCK AT PER LINEAR FOOT		
697.20	52	SILT SACK AT PER EACH		
*701.00	5	CONCRETE SIDEWALKS AT PER SQUARE YARD		
*701.10	5	CONCRETE DRIVEWAYS AT PER SQUARE YARD		
701.20	104	CONCRETE WHEELCHAIR RAMP AT PER SQUARE YARD		
702	40	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY AT PER TON		
706.70	6	MISCELLANEOUS WALK TREATMENT AT PER SQUARE YARD		
751.20	310	PLANTABLE SOIL BORROW AT PER CUBIC YARD		
765.01	910	HYDROSEEDING AT PER SQUARE YARD		
767.60	5	AGED PINE BARK MULCH AT PER CUBIC YARD		

PAGE SUBTOTAL: _____

*Indeterminate - quantity assumed for bid comparison only.

BID FORM CONTINUED

ITEM	QUANTITY	ITEMS AND UNIT PRICES	UNIT PRICE ($)	AMOUNT ($)
851.	1	SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS AT PER LUMP SUM		
852.	360	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT PER SQUARE FOOT		
*854.034	180	TEMPORARY PAVEMENT MARKING – 4 INCH (REMOVABLE TAPE) AT PER LINEAR FOOT		
868.04	1070	4” REFLECTORIZED WHITE EPOXY AT PER LINEAR FOOT		
868.12	12	12” REFLECTORIZED WHITE EPOXY AT PER LINEAR FOOT		
868.18	944	18” REFLECTORIZED WHITE EPOXY AT PER LINEAR FOOT		
869.04	1266	4” REFLECTORIZED YELLOW EPOXY AT PER LINEAR FOOT		
999.	550	TRAFFIC POLICE AT SIXTY-FIVE DOLLARS PER HOUR	$65	$35,750

PAGE SUBTOTAL: _____

*Indeterminate - quantity assumed for bid comparison only.

STREET RESURFACING CONTRACT # 26-44

TOTAL BID PRICE _____

_____
DATE

_____
(Name of general Bidder)

SEAL (if Bid by a Corporation

_____
(Title)

_____
ATTEST

_____
(Business Address)

_____
(City and State)

_____
(Telephone number)

NOTE: If the General Bidder is a corporation, indicate State of corporation under signature and affix corporate seal; if a partnership, give full name and residential address of all partners; and if an individual gives residential address if different from business

WORKFORCE PARTICIPATION GOALS TO BE APPLIED TO STATE AND STATE-ASSISTED CONTRACTS WITHIN THE COMMONWEALTH OF MASSACHUSETTS (M.G.L. C. 149, 44A(2)(G)

ALL CONTRACTS BY A STATE AGENCY OR STATE-ASSISTED CONTRACT FOR DESIGN, CONSTRUCTION, RECONSTRUCTION, INSTALLATION, DEMOLITION, MAINTENANCE OR REPAIR MUST CONTAIN WORKFORCE PARTICIPATION GOALS FOR MINORITIES AND WOMEN

Minority Business Enterprise and Women Business Enterprise Participation Goals and Minority/Women Workforce Utilization Percentages: The applicable goals, if any, for minority business enterprise and woman business enterprise participation established for this Contract are as follows:

The applicable minority workforce utilization percentage is 15.3 %.

The applicable women workforce utilization percentage is 6.9 %.

EXHIBIT A: SCHEDULE FOR PARTICIPATION BY MINORITY/WOMEN BUSINESS ENTERPRISES

EXHIBIT B: LETTER OF INTENT

EXHIBIT C: CONTRACTOR PROGRESS PAYMENT REPORT

EXHIBIT D: CONTRACTOR'S CERTIFICATION (MUST BE SUBMITTED WITH BID)

EXHIBIT A

SCHEDULE FOR PARTICIPATION

BY MINORITY/WOMEN BUSINESS ENTERPRISES

Project Number _____
Project Location _____
Project Name _____

A. Filed Sub-bidders utilizing MBE/WBE firms, and MBE. Sub-bidders – attach to Filed Sub-Bid
B. General Contractor must submit to the Awarding Authority within five (5) working days of the General Bid.

BIDDERS CERTIFICATION
The Bidder agrees that if awarded the contract it will expend at least the amount of the contract set forth below MBE/WBE participation. For purposes of this commitment. The MBE and WBE designation mean a business has been certified by SDO as either a MBE, WBE or MBE/WBE. The Bidder must indicate the MBE/WBE firms it \intends to utilize on the project as follows (attach additional sheets if necessary):

Company Name & Address	MBE or WBE	Describe MBE/WBE Scope of Work (clarify "Labor Only" "Material Only" or "Labor and Material")	If Supplier, Indicate Total Value of Supplies (60% of Total Counts towards Participation)	Total Dollar Value of Participation
1.				
2.				
3.				
4.				
5.				

MBE/WBE Goals
$ _____

Total Dollars Value of MBE Commitment: $ _____ ____ %
Total Dollars Value of WBE Commitment: $ _____ ____ %

The undersigned hereby certifies that he/she has read the terms and conditions of the contract with regards to MBE/WBE participation and is authorized to bind the Bidder to the commitment set forth above

Name of Firm _____
Business Address _____

Print Name Authorized _____

Signature _____

Title _____

Telephone No. _____

Fax No. _____

Date _____

EXHIBIT B

LETTER OF INTENT
MINORITY/WOMEN BUSINESS ENTERPRISES PARTICIPATION

(To be completed by MBE/WBE, and submitted by the General Bidder to the Awarding Authority (Town) within five (5) working days after the opening of General Bids or by Filed Sub-bidder with its bid.)

Project Number _____
Project Name _____
Project Location _____
To _____
Name of General Bidder/Sub-bidder

Indicate SDO Certification
(Include copy(s) of SOW/MBA Certification Letter

_____ MBE
_____ WBE
_____ MBE/WBE

1. This firm intends to perform work in connection with the above project.
2. This firm is currently certified by SDO to perform the work identified below, and has not changed its minority/women ownership, control, or management without notifying SDO within thirty (30) days of such a change.
3. This firm understands that if the General Bidder/Sub-bidder referenced above is awarded the contract, the Bidder intends to enter into an agreement with this firm to perform the activity described below for the prices indicated. This firm also understands that the above-referenced firm, as General Bidder/Sub-Bidder, will make substitutions only as allowed by the terms of the Contract.
4. This firm understands that under the terms of the contract, only work actually performed by an MBE/WBE will be credited toward MBE/WBE participation goals, and this firm cannot assign or subcontract out any of its work without prior written approval of the Awarding Authority, and that any such assignment or subcontracting will not be credited toward MBE/WBE participation goals.

MBE/WBE PARTICIPATION

Section/Item Number (If Applicable)	Describe MBE/WBE Scope of Work (clarify "Labor Only" "Material Only "or "Labor and Material")	If Supplier, Indicate Total Value of Supplies (60% of Total Counts towards Participation)	Dollar Value of Participation

Total Dollar Value: % _____ _____ %
Name of MBE/WBE Firm _____
Business Address _____

Print Name _____

Authorized Signature _____

Title _____

Telephone No. _____

Fax No. _____

Date _____

EXHIBIT C

CONTRACTOR PROGRESS PAYMENT REPORT
MINORITY/WOMAN BUSINESS ENTERPRISES PARTICIPATION

Project Number: _____

Project Name: _____

Project Location: _____

Date: _____

Periodical Payment No: _____

General Contractor: _____

MBE and/or WBE: _____

One copy of this report is to be submitted for each Minority Business Enterprise (MBE) and/or Women Business Enterprise (WBE) at the time of submitting a request for payment. Copies of the report must be sent to the Minority Business Enterprise (MBE) and/or Women Business Enterprise (WBE) named above and to the municipalities Affirmative Marketing Construction Officer (AMCO). The AMCO will forward a copy of each Contractor Progress Payment Report to SDO on a quarterly basis.

1. The total price to be paid to the above-named MBE _____ and/or WBE _____
2. The amount remitted to the Minority Business Enterprise and/or Women Business Enterprise as of the above date for
   work performed under this project: $_____
3. Balance due the Minority Business Enterprise and/or Women Business Enterprise as of the above date for work
   performed under the above-named project: $_____
4. Comments or explanation of amounts indicated under items 1 and 2 above:

_____

_____

_____

_____

5. We hereby certify that information supplied herein (including pages attached) is correct and completed

General Contractor	Minority and/or Woman Business Enterprise
_____	_____
(Signed)	(Signed)
_____	_____
(Title)	(Title)
_____	_____
(Date) _____	(Date) _____

EXHIBIT D

TOWN OF LEXINGTON, MASSACHUSETTS

CONTRACTOR'S CERTIFICATION
(to be completed and submitted with bid)

A. **CONTRACTOR'S CERTIFICATION**

NAME OF PROJECT: _____ __

A Contractor will not be eligible for award of Contract unless such Contractor has submitted the following certification, which is deemed a part of the resulting Contract:

CONTRACTOR'S CERTIFICATION

_____ certifies that

1. it intends to use the following listed construction trades in the work under the contract; and _____

   _____

   will comply with the equal employment opportunity and affirmative action steps contained herein; and

3. will obtain from each of its sub-contractors and submit to the contracting or administering agency prior to the award of any sub-contract under this contract the sub-contractor's certification required by these bid conditions; and

4. the bidder hereby certifies they shall comply with MBE/WBE contractor participation requirements as submitted as part of the bid for this contract award. and all other requirements in accordance with the Town of Lexington EEO/MBE/WBE Policy.

_____
Signature of Authorized Representative of Contractor

TOWN OF LEXINGTON

STREET RESURFACING CONTRACT # 26-44

THIS AGREEMENT, made the _____day of _____, 20____, by and between the Town of Lexington, Massachusetts acting through its Town Manager, hereinafter called the Town and

_____

_____

_____

with legal address and principal place of business at

_____

_____

_____

hereinafter called the Contractor.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Town, the Contractor hereby agrees with the Town to commence STREET RESURFACING CONTRACT #26-44, hereinafter called the project, for the consideration set forth in the proposal and all extra work in connection therewith, under the terms as stated in the conditions of the contract; and at his/her own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the proposal, the specifications, and drawings prepared therefor and as enumerated on the table of contents sheet, all of which are made a part hereof and collectively evidence and constitute the contract.

The Contractor hereby agrees to commence work under this contract within ten working days of the execution of this contract and to fully complete the project within the time specified in section 0200 of these contract documents.

The Town agrees to pay the Contractor for the performance of the Contract, subject to additions and deductions; and to make Payments on account thereof as provided in the Specifications of the contract.

WITNESS WHEREOF: the parties to these presents have executed this Contract in the year and day first above mentioned.

BY: _____

Steve Bartha, Town Manager
For the Town of Lexington, MA

CONTRACTOR:

BY: _____

As required by Chapter 693 of the Acts of 1964, this is to certify that the Town has an appropriation which is adequate to cover the cost of the contract.

Date: Signed

Town Accountant

The Certificate shall be signed by the Auditor or Accountant or other Officer of the Town of Lexington, Massachusetts having similar duties and the Official Title noted below the Signature.

Note: If the Bidder to whom the Contract is awarded is a Corporation, a Certificate of Vote giving the officer the right to sign the Contract must accompany the executed Contract. The form on page 0600-3 can be used for this purpose.

CERTIFICATE OF VOTE
(Corporations Only)

At a duty authorized meeting of the Board of Director of the _____
Name of Corporation

_____ Held by _____ It was VOTED, That
Date

_____ _____
Name Officer

of this company, be and hereby is authorized to execute contracts and bonds in the name and on behalf of said company, and affix its corporate seal hereto; and such execution of any contract or obligation in this company's name on its behalf by such officer under seal of the company, shall be valid and binding upon this company.

I hereby certify that I am the clerk of the above-named corporation and that

_____ is the duly elected officer as above of said company, and that the above vote has not been amended or rescinded and remains in full force and effect as the date of this contract

_____ _____
Date Clerk

Corporate Seal

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that _____
having a usual place of business in _____
As PRINCIPAL, and _____
a corporation duly organized and existing under the laws of _____
and authorized to do business in the Commonwealth of Massachusetts as SURETY, are hereby held and firmly bound unto the Town of Lexington, Massachusetts in the sum of _____($_____) to be paid the said Town of Lexington, Massachusetts for which payment, well and truly to be made, we hereby bind ourselves, jointly and severally, firmly by these presents.

WHEREAS, The said principal has made a contract with the said Town of Lexington, Massachusetts bearing date _____day of _____, 20____, in accordance with drawings and specifications prepared therefor, which contract is hereto annexed, the terms of which are herein referred to and hereby made a part of these presents; and

WHEREAS, The said surety has examined the said contract, its agreements, terms, covenants and conditions, and the plans referred to herein, and assents thereto.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, That if the above bounden, its heirs, executors, administrators, successors and assigns, shall in all things stand to and abide by, and well and truly keep and perform, the covenants, conditions, and agreements in the said contract and any alterations thereof made as therein provided, on its or their part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify its officers and agents, as therein stipulated.

Then this obligation shall become and be null and void; otherwise it shall be and remain in full force and virtue.

AND the said surety for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

IN WITNESS WHEREOF, The principal has caused these presents to be signed in its name and behalf and its corporate seal to be here to affixed by _____

its _____, and_____

its _____, thereto duly authorized, and the said surety has caused these presents to be signed in its name and behalf and its corporate seal to be hereto affixed by ...

_____

its _____, and_____

its _____, thereto duly authorized at

_____, on this _____ day of _____

two thousand and _____.

PRINCIPAL	SURETY
_____(Seal)	_____(Seal)
_____(Seal)	_____(Seal)
_____	_____

Signed and sealed in the presence of

_____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, That _____
having a usual place of business in _____
As PRINCIPAL, and _____
a corporation duly organized and existing under the laws of _____ and authorized to do business in the Commonwealth of Massachusetts as SURETY, are hereby held and firmly bound unto the Town of Lexington, Massachusetts in the sum of _____
_____($_____) to be paid the said
Town of Lexington, Massachusetts for which payment, well and truly to be made, we hereby bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, The said principal has made a contract with the said Town of Lexington, Massachusetts bearing date _____day of _____, 20___, for the completion of _____ in accordance with drawings and specifications prepared therefor, which contract is hereto annexed, the terms of which are herein referred to and hereby made a part of these presents; and

WHEREAS, The said surety has examined the said contract, its agreements, terms, covenants and conditions, and the plans referred to herein, and assents thereto.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden, its heirs, executors, administrators, successors and assigns, shall pay for all labor performed or furnished, for all materials used or employed in the work and for the rental of appliances and equipment employed in the carrying out of said contract, and shall indemnify and save harmless the said Town of Lexington, Massachusetts its officers and agents as therein stipulated.

Then this obligation shall become and be null and void; otherwise it shall be and remain in full force and virtue.

AND the said surety for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work performed here-under or the specifications accompanying the same shall in anyway affect its obligations on this bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

This bond is made for the use and benefit of all persons, firms, and corporations who may furnish any material or perform any labor for or on account of said contract, or rent or hire out any appliances and equipment used or employed in the execution of said contract, and they and each of them are hereby made obligees hereunder the same as if their own proper respective names were written herein as such, and they and/or each of them may proceed or sue hereon.

IN WITNESS WHEREOF, The principal has caused these presents to be signed in its name and behalf and its corporate seal to be here to affixed by _____

its _____ , and _____

its _____, thereto duly authorized, and the said surety has caused these presents to be signed in its name and behalf and its corporate seal to be hereto affixed by ...

_____

its _____ , and _____

its _____ , thereto duly authorized at

_____ , on this _____ day of _____

two thousand and _____,

PRINCIPAL	SURETY
_____(Seal)	_____(Seal)
_____(Seal)	_____(Seal)
_____	_____

Signed and sealed in the presence of

_____

CERTIFICATE OF GOOD FAITH

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

Signature: _____

Date:_____

CERTIFICATE OF OSHA TRAINING OF PERSONNEL

The undersigned certifies that all persons they employ at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration (OSHA) that is at least ten (10) hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

Signature:_____

Date:_____

SPECIAL PROVISIONS

DIVISION I
GENERAL REQUIREMENTS AND COVENANTS

SECTION 2.00
PROPOSAL REQUIREMENTS AND CONDITIONS

Delete all references to www.bidx.com and www.commbuys.com throughout this section.

SUBSECTION 2.02 INTERPRETATION OF BASIC ESTIMATE OF QUANTITIES
Add the following at the end of this subsection:

Certain items in the Bid cover classes of work of uncertain necessity or work for which it is impractical to estimate approximate quantities. Such items have been marked "indeterminate".

SUBSECTION 2.03 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND SITE OF WORK
Add the following at the end of this subsection:

The plans for this contract, when applicable, have been prepared in part from field survey, utility company plans and other available sources. The accuracy and/or precision of this information are not guaranteed to be correct. Accordingly, it is the responsibility of the Contractor to verify all measurements and features of the project area by his own investigation and research.

SUBSECTION 2.04 PREPARATION OF BIDS
This section shall follow that provided in the 1988 Standard Specifications for Highways and Bridges.

SUBSECTION 2.05 DELIVERY OF BIDS
Replace this subsection with the following:

The Bidder shall submit to the location specified in the "Notice to Bidders" prior to the time set for opening of the bid his Bid properly sealed, delivered or mailed in accordance with the instructions printed thereon.

SUBSECTION 2.06 BID GUARANTY REQUIRED
Replace the last two paragraphs of this subsection with the following:

Each bid must be accompanied by a bid deposit in the form of cash, certified check, treasurer's or cashier's check, or a bid bond issued by a responsible bank or trust company and payable to the order of the Town of Lexington, MA. The check or Bid Bond shall be in the amount of five (5%) percent of the Bid and shall be enclosed in a sealed envelope separate from the envelope containing the Bid.

SUBSECTION 2.07 WITHDRAWAL OF BIDS
Replace this subsection with the following:

Except as hereinafter in this subsection otherwise provided, once a Bid is submitted and received by the Owner for consideration and comparison with other bids similarly submitted, the Bidder agrees that he may not and will not withdraw it within 30 consecutive calendar days after the actual date of the opening of bids.

Upon proper written request and identification, Bids may be withdrawn as follows:

1. At any time prior to the designated time for the opening of bids.
2. Death or serious injury of a principal.
3. With the approval of the Town.
4. At any time after the expiration of the period during which withdrawal is prohibited provided the bid has not been accepted by the Town.

Unless a Bid is withdrawn as provided above, the Bidder agrees that it shall be deemed open for acceptance until the Contract has been executed by both parties thereto or until the Owner notifies a Bidder in writing that his Bid is rejected or that the Owner does not intend to accept it, or returns his Bid deposit. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

SUBSECTION 2.08 PUBLIC OPENING OF PROPOSALS

This section shall follow that provided in the 1988 Standard Specifications for Highways and Bridges.

SUBSECTION 2.09 REJECTION OF BIDS

Replace the first paragraph of this subsection with the following:

The Owner may reject Bids which fail to meet the requirements of Subsection 2.04, 2.05 and 2.06 or which are incomplete, conditional or obscure, or which contain additions not called for, erasures, alterations or irregularities of any kind, or in which errors occur, or which contain abnormally high or abnormally low prices for any class or item of work.

SECTION 3.00

AWARD AND EXECUTION OF THE CONTRACT

SUBSECTION 3.03 RETENTION OF PROPOSAL GUARANTY

Replace this subsection with the following:

Each bid check or bid bond amount may be retained by the Owner as security for the fulfillment of the Bidder's agreements as specified in subsection 2.06 and as set forth in the Bid. Should the Bidder fail to fulfill such agreements, his bid check shall become the property of the Owner or if a bid bond was furnished, the bid bond shall become payable to the Owner as liquidated damages; otherwise, the bid check shall be returned to the bidder as hereinafter provided, or if the security is a bid bond, the bid bond shall be declared null and void.

Bid checks will be returned to all except the three lowest bidders within five days, Sundays and legal holidays excluded, after the opening of Bids and to the three lowest bidders within five days, Sundays and legal holidays excluded, after the owner and accepted Bidder have executed the Contract agreement. In the event that the Contract agreement has not been executed by both the Owner and the accepted Bidder within

30 consecutive days after the opening of Bids, the bid check will be returned promptly upon demand of any Bidder who has not been notified of the acceptance his Bid.

Bid checks accompanying Bids which are rejected will be returned within five days, Sundays and legal holidays excluded, after rejection.

None of the three lowest Bids shall be deemed rejected, notwithstanding acceptance of any Bid, until the Contract an agreement has been executed by both the Owner and the accepted Bidder.

SUBSECTION 3.05 EXECUTION OF CONTRACT
Replace the number 14 with the words "10 working".

SECTION 4.00
SCOPE OF WORK

SUBSECTION 4.01 INTENT OF THE CONTRACT
Add the following at the end of the first paragraph:

Additionally, the Contractor is responsible for satisfying all requirements set forth in the Order of Conditions (when applicable) as well as any additional documents that are located in the appendices.

SUBSECTION 4.02 ALTERATIONS
Add the following at the end of this subsection:

Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change and no claim for additional compensation shall be valid unless the change is so ordered.

SUBSECTION 4.10 FINAL CLEANING UP
Replace this entire subsection with the following:

4.10 CLEANING UP

The Contractor shall at all times and at his own expense keep the site of the work free from rubbish and debris caused by his operations under the Contract.

Upon completion of the work and before acceptance and final payment, the Contractor shall remove and dispose of in an approved manner, at his own expense, from the right-of-way, construction site and adjoining property, all temporary structures and all surplus materials and rubbish which the Contractor may have accumulated during the prosecution of the work, and shall leave the areas in a neat and orderly condition.

No equipment or material shall be left within any of the aforementioned areas after acceptance of the Contract without the written permission of the Engineer. The Contractor shall not abandon any material at or near the site regardless of whether or not it has any value.

Add the following new subsection*:*
4.11 UTILITY MAINTENANCE

It shall be the Contractor's responsibility to maintain the drainage system in the areas under construction until such time the final system is put into use. Pipes and structures requiring cleaning as a result of sediment accumulation from construction operations shall be cleaned without additional compensation.

SECTION 5.00
CONTROL OF WORK

SUBSECTION 5.01 AUTHORITY OF THE ENGINEER

Add the following at the end of this subsection:

The Engineer shall be the owner's representative during the life of the Contract and he shall observe the Work in progress on behalf of the Owner.

The Contractor shall proceed without delay to perform the work as directed, instructed, determined or decided by the Engineer and shall comply promptly with such directions, instructions, determinations or decisions. If the Contractor has any objection thereto he may, within 10 days of having received any such direction, instruction, determination or decision, require that any such direction, instruction, determination or decision be put in writing and within 10 days after receipt of any such writing he may file a written protest with the Owner stating clearly and in detail his objections, the reasons therefor, and the nature and amount of additional compensation, if any, to which he claims he will be entitled thereby. A copy of such protest shall be filed with the Engineer at the same time it is filed with the owner. Unless the Contractor requires that any such direction, instruction, determination or decision be put in writing within 10 days of having received such direction, instruction, determination or decision and unless the Contractor files such written protest with the owner and Engineer within such 10 day period, he shall be deemed to have waived all grounds for protest of such direction, instruction, determination, or decision and all claims for additional compensation or damages occasioned thereby, and shall further be deemed to have accepted such direction, instruction, determination, or decision as being fair, reasonable, and finally determinative of his obligations and rights under the Contract.

SUBSECTION 5.05 COOPERATION BY CONTRACTOR

Add the following at the end of the second paragraph of this subsection:

They shall have full authority to execute the directions of the Engineer without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the work, without the prior written consent of the Engineer.

If, in the opinion of the Engineer, the superintendent or any successor proves incompetent, the Contractor shall replace him with another person approved by the Engineer; such approval, however, shall in no way relieve or diminish the Contractor’s responsibility for the work.

SUBSECTION 5.07 CONSTRUCTION (STAKES) STAKINGS

Replace this entire subsection with the following:

The Town will furnish general benchmark control for the project.

The Contractor, at their own expense, will furnish the following survey work:

A. Establishment of base lines or centerlines of construction for main roadways, ramp service roads, side streets and other major dry land items. Reproduction of base lines and centerlines, or lines

offset to them when roadway cuts and fills have been completed. Levels may be taken on the points marking these lines.

B. Original grade stakes at 50' intervals giving finished grades as per plan.

C. Preliminary and final surveys of pits (if borrow is paid by pit measure) and dredging areas, semifinal cross sections on ledge, peat, loam, etc.

D. Control for structures, which shall consist of range lines on centerline of bearings or centerline of piers, face of abutments and wingwalls, horizontal and vertical control for beam seats, along with benchmarks close to structures for vertical control. Structures shall include but shall not be limited to bridges, culverts, dams, buildings and walls.

E. Control for alignment of curbing or edging on ramps and at other complicated locations.

F. Bound points and sideline stakes.

G. All necessary stakes for pipes and head walls, and establish all catch basin and manhole locations as to line and grade.

The Contractor shall employ qualified engineering personnel to ensure adequate control and shall furnish and set stakes of the quality used by the Department for control staking. Rough stakes may be used to denote top and bottom of slopes, edge of pavement, gutter lines, etc.

The Contractor shall furnish and set, at their own expense, all stakes (such as batter boards, slope stakes, pins, offset stakes, etc.) required for the construction operations and he shall be solely responsible for the accuracy of the line and grade of all features of his/her work.

The Contractor shall be held responsible for the preservation of all stakes and marks. If any of such stakes or marks are disturbed or destroyed the cost of replacing them shall be at the contractor's expense.

SUBSECTION 5.09 INSPECTION OF THE WORK
Add the following at the end of the first paragraph of this subsection:

The Contractor shall at all times provide safe and proper facilities therefor.

SECTION 6.00
CONTROL OF MATERIALS

SUBSECTION 6.03 DELIVERY AND STORAGE OF MATERIALS
Add the following at the end of this subsection:

The Department will not accept any materials delivered to any project in motor vehicles or semi-trailer units that exceed the legal maximum gross weight allowed for the particular class, as specified in Section 19A of Chapter 90 of the General Laws of Massachusetts.

SECTION 7.00

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

SUBSECTION 7.01 LAWS TO BE OBSERVED, PART A. GENERAL
Add the following at the end of this subsection:

The Contractor shall protect, indemnify and save harmless the Owner, its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgements, penalties, losses, damages, costs and expenses, including attorney's fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of their agents, servants, employees or Subcontractors.

Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

SUBSECTION 7.05 INSURANCE REQUIREMENTS
Add the following at the end of this subsection:

The limits of the several kinds of liability insurance required for this Contract, in addition to insurance for Workmen's Compensation are as listed as follows:

The following types of insurance shall be provided by the Contractor:

a. Comprehensive General and Public Liability Insurance in an amount not less than $1,000,000 per occurrence and in an amount not less than $3,000,000 aggregate.

b. Bodily Injury Insurance covering the operation of all motor vehicles owned by the Contractor, in the amounts of $1,000,000 for any one person, $3,000,000 for any one accident.

c. Property Damage Insurance covering the operation of all motor vehicles owned by the Contractor, in the amounts of $1,000,000 for any one accident, $3,000,000 aggregate.

d. Insurance to cover bodily injury and property damage resulting from the use of motor vehicles not owned by the Contractor, while such vehicles are being operated in conjunction with the prosecution of the Work under this contract, in the amount required under b) and c) above.

e. Worker's Compensation and Employer's Liability as required by the General Laws of the Commonwealth of Massachusetts.

All policies shall be so written that the certificate holder, namely the Town of Lexington, 1625 Massachusetts Avenue, Lexington, MA 02420 is insured at no cost to the Town for the full amounts stated above.

The Contractor shall name the Town of Lexington as an additional insured.

SUBSECTION 7.09 PUBLIC SAFETY AND CONVENIENCE
Add the following at the end of this subsection:

During construction, the Contractor shall maintain at least one 12-foot travel lane during the day and shall open the road up to two-way traffic at night. It is the Contractor's responsibility to obtain approval for any lane closings, delays or detours at least 24 hours in advance by the Town of Lexington Engineering Division. Additionally, sidewalks must be left open at all times or proper accessible pedestrian detour put in place prior to closure.

The Contractor shall remove at their own expense any and all equipment from roadways as directed by the Engineer and/or the Safety Officer at the conclusion of the working day.

The Contractor shall maintain access to all drives at all times. If access to any drives cannot be maintained, the Contractor shall notify the Engineer and persons affected, in writing, at least one week in advance of the planned discontinuance. In any case, the access shall not be discontinued for more than two consecutive days without obtaining the written authorization of the Engineer.

All construction shall be completed to Intermediate (binder) course in all phase prior to applying any surface course. Surface course shall be applied continuously in an effort to minimize jointing. Where joints are required, the relevant provisions of Section 460 shall be employed.

Construction shall be carried out in the sequence as directed by the Engineer. The surface course shall be applied after all other construction is complete.

SUBSECTION 7.11 TRAFFIC OFFICERS AND RAILROAD FLAGGING SERVICE
Replace the first three paragraphs of this subsection with the following:

Traffic Police Details and Fire Details shall be provided for as stipulated in Section 850 of the Special Provisions for the Contract.

SUBSECTION 7.13 PROTECTION AND RESTORATION OF PROPERTY
Add the following at the end of this subsection:

A. Protection of Utilities and Property

The Contractor shall be responsible for locating, maintaining and protecting all existing utilities. Pipes or other structures damaged by the Contractor may be repaired by the Town, Department, or utility company that suffers the loss. The cost of such repairs shall be at the expense of the Contractor. Should any damage to a utility caused by the Contractor result in an emergency, the Contractor shall promptly warn the Owner and, if requested, furnish laborers to work temporarily under the Owner's direction in gaining access to the utility.

If live service connections are to be interrupted by excavation of any kind, the Contractor shall not break the service until new or temporary services are provided. Abandoned services shall be plugged off or otherwise made secure.

The Contract Plans indicate the location of existing known utilities in the vicinity of the work. Bidders are cautioned to verify this information, as its accuracy and completeness are not guaranteed in any manner.

B. Notice to Owners of Utilities

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately-owned utilities of his/her intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations, and the Contractor shall at that time file a copy of such notice with the Engineer.

Before the Contractor begins any work or operations that might damage any subsurface structures, he shall carefully locate all such structures and conduct his/her operations so as to avoid any damage to them.

The Contractor shall hand deliver notices to abutting properties at least 24 hours before the start of construction. The notice will indicate the timing of the construction and any access restrictions or other inconveniences that may result.

The Contractor shall notify and coordinate with Waste Management, the Town's waste disposal contractor when construction activities will correspond with waste pickup. A pickup schedule is included in the Scope of Work.

The Contractor shall notify and coordinate with school bus and transit companies when construction operations will affect routes.

Function	**Company**	**Contact**	**Number**
Waste Disposal	Capital Waste	Andre Percel	781-799-0760
School Bus	C&W Transportation	Mary Canavan	781-861-2580 ex.68063
LEXPRESS	Town of Lexington	Mel Novner	781-698-4822
Liberty Ride	Lexington Visitors Center	Stacia Cooper	781-698-4482

COORDINATION OF UTILITIES

The following is contact information of the principal utilities affected, but completeness of this list is not guaranteed. It will be the contractor's responsibility to verify this contact information and to notify the Town of changes to this list.

Telecommunications:

RCN Cable
Kenneth Bates, Engineer 4
Margot Jones, Engineering Manager
Alex Ortiz, Construction Manager
RCN Corporation
956 Mass. Ave.
Arlington, MA 02476
O: 781-316-8885
C: 617-293-0201
F: 781-316-8887
margot.jones@rcn.net
alex.ortiz@rcn.net)
Ken.bates@rcn.net

Comcast Cable
Gene Looney, Construction Organization
9B Forbes Rd
Woburn, MA 01801
781-281-7742
Eugene_looney@cable.comcast.com

Verizon
Verizon Engineering Center
Mike Barros
385 Myles Standish Blvd
Taunton, MA 02780
866-686-1195
ma-ri.osp.center@verizon.com

Level 3 Communications
Pat Provost, Business Analyst, OSP Relocations
Level 3 Communications
1025 El Dorado Blvd
Broomfield, CO 80021
720-888-0916
relo@centurylink.com

AT&T
Erica Hudson, Senior Project Coordinator
Right of Way Department
50 Mall Road, Suite 203
Burlington, MA 01803
781- 221-8400 x7041
Erica.Hudson@sienaengineeringgroup.com

Gas:

National Grid
Deepa Gangadhar, Engineer NE Public Works
170 Data Drive
Waltham MA 02451
Deepa.Gangadhar@nationalgrid.com

Tennessee Gas Pipeline
David Wood
8 Anngina Drive
Enfield, CT 06082
O: 860-763-6005 C: 413-530-7117
David_wood@kindermorgan.com

Algonquin Pipeline
Kathy M. Aruda
Advisor Lands & ROW Enbridge
70 Wilson Way
Westwood, MA 02090
508-938-7728
617-921-4910
Kathleen.aruda@enbridge.com

Electricity:

Eversource Overhead
Chad Gandolfi, Overhead Infrastructure
Chad.gandolfi@eversource.com

Eversource Underground
Aymen Ipizra, Underground Infrastructure
Aymen.ipizra@eversource.com
200 Calvary St
Waltham, MA 02453
508-305-7163

Water and Sewer:

Town of Lexington Water/Sewer Department
Jamal Jones, W/S Superintendent
201 Bedford Street
Lexington, MA 02421
781-274-8300
jjones@lexingtonma.gov

MWRA - Water
Kevin McKenna
2 Griffin Way
Chelsea, Ma. 02150
617-305-5956
Kevin.mckenna@mwra.com

MWRA-Water
Ralph Francesconi
2 Griffin Way
Chelsea, Ma. 02150
617-305-5827
Ralph.Francesconi@mwra.com

C. Protection of Underground Facilities

The Contractor's attention is directed to the necessity of making his/her own investigation in order to assure that no damage to existing structures, drainage lines, etc., will occur.

The Contractor shall notify 'Mass DIG SAFE' and procure a DIG SAFE number for each location prior to disturbing existing ground in any way. The contractor shall notify **Lexington DPW at 781.274.8300** in addition to **DigSAFE** as Lexington is currently not a member.

DIG SAFE Call Center (888) 344-7233

The Contractor shall be responsible for informing utility owners in the event of any disruption of service or damage of any utility, marked or not. The Contractor shall have a means of telephone communication and contact numbers on site, at all times.

D. Property Bounds

Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced and/or realigned, by the Contractor as directed by the Engineer. No further compensation will be due the Contractor for the materials and labor required to re-establish the bound in its proper position as shown on the plans.

SUBSECTION 7.18 CONTRACTOR'S RESPONSIBILTY FOR THE WORK
Replace the second paragraph of this subsection with the following:

The Contractor shall take all precautions necessary to prevent damage to the work by storms or by water entering the site of the work directly or through the ground. In case of damage by storm or water, the Contractor shall at his own cost and expense make such repairs or replacements or rebuild such parts of the work as the Engineer may require in order that the finished work may be completed as required by the Contract.

The Contractor shall bear all losses resulting to him on account of the amount or the character of the work or because the nature of the land in or on which the work is done is different from what was estimated or expected, or other causes (except as stated in Subsection 4.04, Changed Conditions).

SUBSECTION 7.19 PERSONAL LIABILITY OF PUBLIC OFFICIALS
Replace all references to "the Commonwealth" with "the Town".

SECTION 8.00
PROSECUTION AND PROGRESS

SUBSECTION 8.03 PROSECUTION OF WORK
Add the following at the end of the first paragraph of this subsection:

The Engineer will schedule and administer progress meetings and specially called "meetings" throughout the duration of the Work at minimum monthly intervals. The time and location of such meetings shall be designated by the Engineer and shall be convenient for all parties involved. The Engineer will prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies to participants, and those affected by decisions made.

Additionally, the work under this contract shall progress by area, whereas, the contractor may not progress to work on the next area until substantial work on the previous area has been completed as determined by the engineer. 'Substantial Completion' as stated here shall be defined as the top course applied, berm installed, driveway aprons complete, loam and seed in place, and excess material and material storage piles removed. Once completed the contractor shall submit an updated schedule and receive approval from the engineer before progressing to the next area. The Engineer will consider requests for work in more than one area at a time under special circumstances; however, it shall be the sole discretion of the engineer in the allowance of this activity. For the purposes of this contract the areas are labeled on the attached map. There is not a requirement that they be performed in the order labeled.

A traffic control must be submitted, a minimum of 10 days in advance of work in any given area.

'Areas,' are those defined on the map attached to the appendix.

SUBSECTION 8.05 CLAIM FOR DELAY OR SUSPENSION OF THE WORK
Replace all references to "the Commission" with "the Town".

Add the following at the end of this subsection:

If in the event the Contractor shall make a claim for delay or suspension of the work, the Contractor shall continue prosecution of the work during the period pending resolution of the claim or delay.

SUBSECTION 8.09 DELAY AND SUSPENSION OF THE WORK
Replace all references to "the Commonwealth" with "the Town".

SUBSECTION 8.10 DETERMINATION & EXTENSION OF CONTRACT TIME FOR COMPLETION
Add the following at the end of this subsection:

The Contractor shall suspend all work in streets between November 15 and April 15, unless otherwise permitted by the Engineer. Weather permitting and with the Engineer's approval, the Contractor will be allowed to continue working in easement areas during the winter. The time for completion established for the contract has already taken into account, the potential for shutting down operations for the winter.

Add the following new subsection:
SUBSECTION 8.14 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

Work on this project is restricted to a normal eight-hour day (7:00 AM to 3:00 PM), five-day week, with the Prime Contractor and all Subcontractors working on the same shift. No work shall be done at night, on Saturdays, Sundays or Town observed Holidays or the day before or after a long weekend, which involves a holiday, except (1) usual protective work, such as pumping and the tending of fires, (2) work done in case of emergency threatening injury to persons or property, or (3) if all of the conditions set forth in the following paragraph below are met:

No work other than that included in (1) and (2) above shall be done at night except when (a) in the sole judgement of the Engineer, the work will be of advantage to the Owner and can be performed satisfactorily at night, (b) the work will be done by a crew organized for regular and continuous night work, and (c) the Engineer has given written permission for such night work.

SECTION 9.00
MEASUREMENT AND PAYMENT

SUBSECTION 9.04 PARTIAL PAYMENTS
Replace all references to "biweekly" with "monthly".

Replace the second paragraph of this subsection with the following:

There will be a retainage of ten (10%) percent for all planting items. For all other items of work there will be a retainage of five (5%) percent of the value of said items.

SUBSECTION 9.05 FINAL ACCEPTANCE AND FINAL PAYMENT
Replace this entire subsection with the following:

Fixing of the date of completion and acceptance of the work or a specified part thereof shall only be effective when accomplished by writing, specifically stating so and signed by the Owner.

Partial Acceptance and Payment

At any time, the Owner may issue a written order to the Contractor declaring that he intends to utilize a specified portion of the work which in his opinion has been sufficiently completed in accordance with the Contract. A tentative list of items remaining to be completed or corrected shall be included with this order.

Within 45 days after acceptance under this subsection, the Engineer shall make an estimate in writing of the amount and value of the part of the work so accepted. The Owner shall pay said amount to the Contractor after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract, said payment to be made at the time of the next monthly progress estimate.

Acceptance by the Owner under this subsection shall not relieve the Contractor of any obligations under the Contract except to the extent agreed upon in writing between the Owner and the Contractor. The Owner shall have the right to exclude the Contractor from any part of the work which has been accepted, but the Owner shall allow the Contractor reasonable access thereto to complete or correct items on the tentative list.

Final Acceptance and Payment

The Owner shall pay to the Contractor the entire amount found by the Engineer to be earned and due hereunder after deducting there from all previous payments and all amounts to be kept and all amounts to be retained under the provisions of the Contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment. Except as in this subsection otherwise provided, such payment shall be made no later than 15 days after but in no event before the expiration of the time within which claims for labor performed or materials or equipment furnished must be filed under the applicable lien law, or, if such time is not specified by law, the expiration of 30 days after the completion of the Engineer's final estimate.

If within six months from the date the final estimate is forwarded to the Contractor, the Contractor has not filed a valid (as by the Engineer) written reasons(s) for not accepting the final estimate, the final estimate will be considered acceptable to the Contractor and payment of the final estimate made. The acceptance by the Contractor of the final payment shall operate as and shall be a release to the Party of the First Part and every member, agent and employee thereof, from all claims by the Contractor for anything done or furnished for, or relating to the work or for any act or neglect of the Party of the First Part or of any person relating to or affecting the work, except the claim against the Party of the First Part for the remainder if any there be, of the amounts kept or retained as provided in Subsection 7.15.

DIVISION II
CONSTRUCTION DETAILS

SUBSECTION 101
CLEARING AND GRUBBING

CONSTRUCTION METHODS

101.61 CLEARING AND GRUBBING
Add the following at the end of this subsection:

The Contractor may use any equipment, materials or labor as he deems necessary, with no additional measurement or payment to be made.

COMPENSATION

101.80 METHOD OF MEASUREMENT
Replace paragraph six with the following;

Tree trimming will be measured per each tree trimmed, which includes full compensation for all labor, materials, equipment, apparatus, tools and incidentals necessary for the satisfactory completion of the work.

101.81 BASIS OF PAYMENT
Add the following after this first sentence of this subsection.

All labor, material and equipment required to perform Clearing and Grubbing shall be considered incidental to the bid item, with no additional measurement or payment to be made.

Replace paragraph six with the following;

Tree trimming shall be paid for at the contract unit price per each tree trimmed, which price shall include full compensation for all labor, materials, equipment, apparatus, tools and incidentals necessary for the satisfactory completion of the work.

101.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 102.12	Tree Trimming	EACH

SUBSECTION 120
EXCAVATION

DESCRIPTION

120.20 GENERAL

Add the words "Removal and Disposal of surplus road base" after the words "Unclassified Excavation" in the last sentence of the first paragraph.
Add the following at the end of this subsection:

All locations to be excavated shall be stripped of topsoil prior to excavation. This work shall be paid at

the unit price for topsoil excavated and stacked.

The contractor will be responsible for obtaining all the necessary permits and for finding a proper area to dispose of surplus material.

Any Petramat or other fabric material that is encountered during cold planer operations and not thoroughly bonded to the existing asphalt shall be removed by the contractor prior to proceeding with resurfacing.

Add the following new subsection:
120.27 REMOVAL AND DISPOSAL OF SURPLUS ROAD BASE

This work shall include the excavation of excess reclaimed road base as directed by the engineer. All surplus material resulting from reclamation and not needed for use on the project, as determined by the Engineer, shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

Add the following new subsection:
120.28 EXCAVATION FOR PATCHING

This work shall include the excavation of existing pavement and /or sub-base as well as any boulders or rock below the sub-base as necessary. The work shall also include the grading and compaction of sub-base to the required cross section as shown on the plans or as directed by the Engineer. All surplus material resulting from excavation and not needed for use on the project, as determined by the Engineer, shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

Add the following new subsection:
120.29 EXCAVATION FOR ROAD WIDENING AND RELOCATION

This work shall include all excavation along the edge of the existing roadway for the purpose of road widening and/or relocation. Said work shall be performed in a manner as to protect any and all existing utilities and landscape material from damage.

Add the following new subsection:
120.30 SAWCUTTING

This work shall include the full depth cutting of the existing pavement, which may include sawcutting for granite curb, driveways, reclaim end treatment, drainage and roadway patching unless otherwise noted in such items as inclusive. Sawcutting shall be complete to the existing sub-base by a motorized saw along lines as shown on the plans or as directed by the Engineer.

CONSTRUCTION METHODS

120.60 GENERAL
Add the following at the end of this subsection:

D. Care when excavating for sidewalks

The Contractor shall take all necessary precautions to prevent damage to walls, building foundations, and fences abutting sidewalks and driveways designated for replacement. Where required, new sidewalks shall meet said walls and fences. Prior to sidewalk removal, a sawcut shall be provided in all sidewalks to be removed a distance, to be determined by the Town of Lexington Department of Public Works (6 inches minimum) from the face of adjacent buildings, retaining walls, and fences. The final 6 inches (minimum) of

sidewalk will be removed with caution under the resident Town of Lexington Department of Public Works' supervision. There will be no additional payment for labor or equipment necessary to meet this "remove with caution" requirement. The Contractor is responsible for damage to walls, foundations and fences due to his construction activities and shall be repaired at the Contractor's own cost. Any brick, paver, or stamped concrete/asphalt sidewalk, crosswalk, or roadway disturbed by construction activity shall be repaired by the Contractor at no additional cost. Any brick, paver, or stamped concrete/ asphalt sidewalk, crosswalk, or roadway damaged or to be restored shall match the same materials that exist, including concrete base if appropriate, unless otherwise indicated on the plans, or directed by the Engineer.

When practical, sawcuts shall be made at existing control joints.

120.65 TOPSOIL EXCAVATED AND STACKED

Add the following at the end of this subsection:

The Contractor will restore any areas used or damaged in the stockpiling operation at his own expense.

Add the following new subsection:

120.68 REMOVAL AND DISPOSAL OF SURPLUS ROAD BASE

This work shall include the excavation, removal and satisfactory disposal, in accordance with relevant provisions of Section 120.60 of all materials listed under Section 120.27 as directed by the engineer.

COMPENSATION

120.80 METHOD OF MEASUREMENT

Add the following at the end of this subsection:

Sawcutting will be measured by the linear foot to the limits as shown on the plans or as directed by the Engineer.

Any rock or boulders that must be excavated and measure less than one cubic yard in volume shall be considered incidental to the excavation work with no additional measurement of payment to be made. Any rock or boulders that must be excavated and measure one cubic yard or greater in volume shall be considered Class A Rock and shall be measured in accordance with the pay limits as described above.

120.81 BASIS OF PAYMENT

Add the following at the end of this subsection:

Sawcutting will be paid at the contract unit price per linear foot of payment cut.

120.82 PAYMENT ITEMS

Add the following payment items in numerical order:

ITEM 120.11	Excavation for Patching	CUBIC YARD
ITEM 120.12	Excavation for Road Widening and Relocation	CUBIC YARD
ITEM 120.13	Removal and Disposal of Surplus Road Base (from Reclaim Operations)	CUBIC YARD
ITEM 482.30	Sawcutting	LINEAR FEET

Insert the following new section in numerical order:

SUBSECTION 130
STREET SWEEPING

DESCRIPTION

130.20 GENERAL

Street sweeping shall be by mechanical street sweeper vehicle to clear the paved surface of all debris, to the extent as determined by the Engineer.

CONSTRUCTION METHODS

130.60 GENERAL

The timing of the street sweeping operation should be such that the road remains sufficiently clean between the completion of the sweeping and the start of any reclamation and/or repaving. Should the Engineer decide that the road surface requires additional sweeping, no additional compensation shall be offered the Contractor to complete this process.

No additional compensation will be allowed when street sweeping operations are used as a means of clearing off and/or exposing areas of pavement covered with vegetation or debris.

COMPENSATION

130.80 METHOD OF MEASUREMENT

Measurement shall be made by the hour, with a minimum of four hours measured per each day of use unless otherwise noted in such items as inclusive.

130.81 BASIS OF PAYMENT

Street sweeping will be paid at the contract unit price per hour, with a four-hour minimum per day unless otherwise noted in such items as inclusive.

When sweeping is performed in preparation for paving operations then it shall be inclusive to the paving items.

130.82 PAYMENT ITEMS

ITEM 130.	Street Sweeping	HOUR

SUBSECTION 150
EMBANKMENT

CONSTRUCTION METHODS

150.64 BACKFILLING FOR STRUCTURES AND PIPES

A. General

Revise the 2nd sentence of this subsection to read as follows:

When suitable backfill material cannot be obtained from excavation, gravel borrow shall be used.

COMPENSATION

150.80 METHOD OF MEASUREMENT

Add the following after the 9th paragraph of this section:

Crushed Stone (¾") when used for pipe bedding shall be included in the item price for the associated pipe, with no separate measurement or payment.

Insert the following new section in numerical order:

SUBSECTION 153
CONTROLLED DENSITY FILL

DESCRIPTION

150.20 GENERAL

Excavatable Controlled Density Fill (CDF) shall be used as backfill material in utility trenches, abandoned structures and other locations as determined by the Engineer.

MATERIALS

150.40 GENERAL

Materials shall meet the requirements specified in the following subsection of Division III, Materials:

CONTROLLED DENSITY FILL TYPE 2E M4.08.0

CONSTRUCTION METHODS

150.60 GENERAL

Controlled Density Fill shall be placed in a manner such that no damage will occur to utility lines, pipes or structures. The material shall be placed so that no voids are left upon completion of the backfilling process.

Steel road plates shall protect the CDF until the fill reaches a point that it will not be deformed by traffic passing over it. Per direction of the engineer, CDF may be left one foot below bottom of asphalt with remaining backfill material placed after appropriate curing time as directed by the engineer. Additional backfill will be paid at contract unit price for the material used as directed.

COMPENSATION

150.80 METHOD OF MEASUREMENT

Controlled Density Fill shall be measured in place by the cubic yard.

150.81 BASIS OF PAYMENT

Payment for Controlled Density Fill will be paid for at the contract unit price per cubic yard. No additional compensation shall be offered for material placed beyond the limits of excavation as shown in the plans or as determined by the Engineer.

Additional backfill will be paid at contract unit price for the material used as directed.

150.82 PAYMENT ITEMS

ITEM 153.	Controlled Density Fill-Excavatable	CUBIC YARD

SUBSECTION 201
BASINS, MANHOLES AND INLETS

MATERIALS

201.40 GENERAL
Add the following at the end of this subsection:

Clay brick conforming to Section M4.05.2 of the Standard Specifications shall be used to adjust all manholes and catch basin frames and grates or covers to grade. For sewer manholes, Grade SS bricks shall be used for sewer inverts and shelves. Grade MS bricks shall be used for other locations.

Castings shall be as follows, or as directed by the Engineer:

- All Manhole Cover Frames shall be as manufactured by EJ a.k.a. East Jordon Iron Works meeting the following: EJIW product #00211111 (0MA211000038, 8 inch depth) Upon approval of the engineer 6-inch frames may be utilized in defined locations and shall meet the following EJIW product #00226611 (0MA226000002, 6 inch depth)
- Drain Manhole Covers shall be EJIW 0MA211000041 or approved equal
  (The word DRAIN in 2-inch, flat face, gothic letters shall be cast into the cover)
- Sewer Manhole Covers shall be EJIW 0MA211000040 or approved equal
  (The word SEWER in 2-inch, flat face, gothic letters shall be cast into the cover)
- Catch Basin Frames with 3 flanged sides shall be EJIW product #00554813 (0MA554000005, 8-inch deep) or approved equal. Upon approval of the engineer 6-inch frames may be utilized in defined locations and shall meet the following 0MA554000003, 6 inch depth.
- Catch Basin Frames with 4 flanged sides shall be EJIW product #00554811 (0MA554000006, 8-inch deep) or approved equal. Upon approval of the engineer 6-inch frames may be utilized in defined locations and shall meet the following 0MA554000004, 4 inch depth.
- Double Catch Basin Frames with 3 flanged sides shall be EJIW product #00554814 (0MA544000001, 8-inch deep) or approved equal. Upon approval of the engineer 4-inch frames may be utilized in defined locations and shall meet the following 0MA544400106, 4 inch depth.
- Double Catch Basin Frames with 4 flanged sides shall be EJIW product #00554812(0MA544000002, 8-inch deep) or approved equal. Upon approval of the engineer 4-inch frames may be utilized in defined locations and shall meet the following 0MA544400012, 4 inch depth.
- Catch Basin Grates shall be EJIW product #0055284 (0MA552000076) or approved equal for Cascade Left or product #0055285 (0MA552000077) or approved equal for Cascade Right (The words DUMP NO WASTE in 1/2-inch, letters shall be engraved into the edge of grate along one side)

All exterior surfaces of manhole brickwork shall be plastered with cement mortar.

Leaching basins shall be precast concrete structures as approved by the Engineer.

CONSTRUCTION METHODS

201.60 GENERAL

Add the following at the end of this subsection:

Catch basins may be required to be built on (connected to) existing lines. Work may include, but is not limited to, excavation around existing pipe, removal/trimming existing pipe to inside face of catch basin, building new catch basin around existing pipes (including base and 4' sump), and backfilling/compacting around catch basin.

The limits of the excavation shall be sawcut or milled full depth through all existing pavement prior to any excavation for structure placement.

201.63 PLACING CASTINGS

Delete the following sentence

'Cement Concrete collars shall be placed around the castings after the final setting as shown on the plans and as directed'

Replace with the following sentence

Hot Mix Asphalt (HMA) collars shall be placed around the castings and shall cover to the bottom of the frame (flange) to a height no greater than the bottom of the top course, as shown on detail or as directed.

Add the following at the end of this subsection:

All three-flanged rectangular frames shall be placed as described above. The side of the casting without a flange shall be filled in with bricks and mortar or steel plates sufficient to cover any opening in the structure or as directed by the Engineer Said work shall be considered incidental to Item 220, Drainage Structure Adjusted with no additional measurement or payment to be made.

201.65 LAYING BRICKS AND BLOCKS

Add the following at the end of this subsection:

A minimum of 2 courses of brick shall be used to set frames on all manholes, catch basin and leaching basins.

Add the following new subsection:

201.66 LEACHING BASINS

Leaching basins shall be constructed with 4-foot sumps and shall be surrounded by 2 feet of crushed stone. Filter fabric shall line the entire excavation for the leaching basin up to the existing surface.

COMPENSATION

201.80 METHOD OF MEASUREMENT

Replace the first two paragraphs of this section with the following:

Measurement for catch basins, leaching basins, manholes and drop inlets shall be measured as complete units regardless of depth.

All cement blocks, HMA Collars, filter fabric and stone associated with the construction of leaching basins shall be considered incidental to the cost of the leaching basin with no additional measurement or payment.

Sawcutting or milling of existing pavement to the excavation limits for structure placement shall be considered incidental to the cost of associated items, with no additional measurement or payment.

201.81 BASIS OF PAYMENT
Delete the following sentence
'Payment for the concrete collars shall be included in the contract unit price of the structure involved'

Replace with the following sentence
'Payment for the HMA collars shall be included in the contract unit price of the structure involved'

Add the following at the end of this subsection:
All costs associated with construction of catch basins saddling existing drainage lines shall be included in the unit price per catch basin.

SUBSECTION 220
ADJUSTMENT, REBUILDING AND REMODELING OF DRAINAGE STRUCTURES

CONSTRUCTION METHODS

220.60 GENERAL
Add the following at the end of this subsection:

Lowering and plating of Catch Basins, Manholes, Water and Gas gates shall follow the detail described in section 403.

COMPENSATION

220.80 METHOD OF MEASUREMENT
Add the following to the end of this subsection:

Catch Basins and/or manholes lowered and plated as described in section 403 will be measured in place by the unit each, and approved.

Hot Mix Asphalt shall be used to fill void caused by lowering and plating structure or gate, they shall be brought to meet the existing surface of roadway and shall be considered incidental to Item 220.10 and 220.15

Water gates and gas gates lowered and plated as described in section 403 will be measured in place by the unit each, complete and approved.

220.81 BASIS OF PAYMENT
Revise 6th sentence to read as follows:

Catch Basins and/or manholes lowered and plated as described in section 403 will be paid for at the contract unit price each.

Water gates and gas gates lowered and plated as described in section 403 will be paid for at the contract unit price each.

220.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 220.10	Catch Basins and/or Manholes Lowered and Plated	EACH
ITEM 220.15	Water Gates and Gas Gates Lowered and Plated	EACH

SUBSECTION 230
CULVERTS, STORM DRAINS AND SEWER PIPES

CONSTRUCTION METHODS

230.60 GENERAL
Add the following at the end of this subsection:

For all pipes, including services, the limits of the trench shall be sawcut or milled full depth through all existing pavements prior to any excavation for pipe placement.

Add the following new subsection:
230.66 UTILITY WARNING AND IDENTIFICATION TAPE

Buried Utility Warning and Identification Tape shall be placed at locations as directed by the Engineer. Said warning tape shall be made of plastic backed aluminum foil tape or detectable magnetic plastic tape with a minimum width of 3 inches. It shall be color coded and labeled continually along entire length of the tape in bold black letters for the appropriate utility, and detectable by an electronic detection instrument. The markings on the tape should be permanent and unaffected by moisture or light.

Buried Utility Warning and Identification Tape shall be considered incidental to the work being done and no additional compensation will be offered for this item.

COMPENSATION

230.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

The placement of pipe bedding shall be considered incidental to the placement of associated pipe, with no separate measurement or payment.

Sawcutting or milling of existing pavement to the excavation limits for pipe placement shall be considered incidental to the cost of associated items, with no additional measurement or payment.

230.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Backfill to replace material removed under Class B Trench Excavation for storm drains and sewer pipe shall be ¾" crushed stone for drainage as specified in Section 150.

SUBSECTION 270
PIPES REMOVED AND RELAID OR STACKED

Change the title of this Section to read:

SUBSECTION 270
PIPES REMOVED AND RELAID, STACKED OR DISPOSED

DESCRIPTION

270.20 GENERAL
Insert the word "disposing," after the word "relaying,"

CONSTRUCTION METHODS

Add the following new Subsection:
270.65 DISPOSING

All pipe removed shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

COMPENSATION

270.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Pipes removed and disposed, as directed, will be measured as the actual length of pipe removed.

270.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Pipes removed and disposed will be paid for at the contract unit price per linear foot of pipe required to be removed and disposed.

270.82 PAYMENT ITEMS
Add the following payment items in numerical order:

ITEM 272.	Pipe Removed and Disposed	LINEAR FEET

Add the following new subsection

SUBSECTION 285
PHOSPHORUS INFILTRATION TRENCH

DESCRIPTION

285.20 GENERAL

The Work under this section shall conform to the relevant provisions of Sections 150, 200, M2, and M9 of the Standard Specifications (all as amended) and the following. The Phosphorus infiltration trench shall meet the Standard Specifications for ¾" Crushed Stone.

CONSTRUCTION METHODS

285.60 GENERAL

The Work shall include the full depth excavation and subsequent installation of an infiltration trench system consisting of: four (4) foot deep crushed stone layer by five (5) foot wide as shown on the detail. Filter fabric that meets AASHTO M288 Class 2 (Mirafi 160N Non-Woven Geotextile) of approved equal shall be installed along all sides and ends (not the bottom) of the infiltration trench system. Where infiltration trenches abut roadways, impermeable liners shall be installed as shown on detail. Impermeable liner shall be: 30 MIL PVC Impermeable liner Specific gravity:1 20 min (ASTM D 792) Tensile: 73lb/in-width min (ASTM D 882) Elongation at Break: 380 % min (ASTM D 882) Modulus: 30 lb/in-width min (ASTM D 882) Tear Resistance: 30 lb./in min (ASTM D 1004)

COMPENSATION

285.80 METHOD OF MEASUREMENT

Phosphorus infiltration trenches shall be measured per Each, which shall include a complete infiltration trench system in-place including all labor, materials, equipment. excavation, hauling, disposing, washed crushed stone, filter fabric, impermeable liner, 12" PVC drain lateral inlet pipe, fittings (tees: beds), 12-inch PVC Perforated Pipe, 12-inch solid cap, 8-inch PVC per riser Pipe observation well with cap and road box, the per each measurement shall be full compensation for all the above work up to a length of 50 feet measured from one end of the PVC pipe to the other end of the PVC pipe measured linearly along the pipe.. For Phosphorus infiltration trenches extending beyond said length the measurement shall be paid as a ratio of the total length installed divided by 50 feet.

285.81 BASIS OF PAYMENT

Includes but is not limited to all materials, equipment, services, and for furnishing and installing phosphorus infiltration trenches as described in Detail. This will be paid for at a contract unit price per Each with adjustments for Phosphorus infiltration trenches beyond 50 feet in length as described in 285.80.

285.82 PAYMENT ITEM

ITEM 285.	Phosphorus Infiltration Trench	EACH

SUBSECTION 301
WATER SYSTEMS

DESCRIPTION

301.22 PROTECTION OF UNDERGROUND STRUCTURES

Replace this entire subsection with the following:

The Contractor shall take every precaution to protect all conduits, pipe or structures uncovered during excavation. In the event that a pipe or structure that has been unmarked or is mistakenly marked in the field or on the plans is damaged by the Contractor, an allowance shall be made by the Town for compensation to the Contractor for the cost to repair the damage. No compensation shall be made for pipes or structures that are damaged that have been correctly marked out in the field or on the plans.

CONSTRUCTION METHODS

301.60, PART F. REMOVAL OF CASTINGS
Insert the word "disposed," after the word "reset,"

Add this new subsection:
301.61 GAS GATES

It shall be the sole responsibility of the Contractor to coordinate with National Grid to have any and all gas gates adjusted to the proper grades or as directed by the Engineer. Unless otherwise directed by National Grid, it shall be the responsibility of National Grid to adjust said gates. In the case that an agreement is made with National Grid for the contractor to adjust the gas gates then compensation will be made to the contractor by the town under item 358.

COMPENSATION

301.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Measurement of water and gas gate boxes adjusted shall include all risers as necessary, up to a length of 12 inches.

Allowances shall be made for compensation to the Contractor for water mains, gates or services that are broken or disrupted during excavation within the trench limits as defined in the construction plans that have either been unmarked in the field or are located at a minimum of five (5) feet parallel to either the left or right of the water main, gate or service marking as laid out in the field. Such allowances for compensation shall be measured per each occurrence of the preceding scenario.

Water gates and gas gates lowered and plated as described in section 403 will be measured in place by the unit each, complete and approved.

301.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

All risers up to a length of 12 inches shall be considered incidental to the contract unit price for gate boxes adjusted, with no additional measurement or payment. If gate box needs replacement below 12" from final grade then payment will be made under Item 357 for the excavation, disposal of materials, installation and proper backfilling and under Item 358 for adjustment to final grade.

Allowances for compensation shall be paid per each occurrence as measured in Subsection 301.80.
Hot Mix Asphalt shall be used in place of concrete collars around castings and shall be considered incidental to the item 358.

Water gates and gas gates lowered and plated as described in section 403 will be paid for at the contract unit price, each.

Hot Mix Asphalt shall be used to fill void caused by lowering and plating gates and shall be considered incidental to Item 220.10 and 220.15

301.82 PAYMENT ITEM
Add the following payment items in numerical order:

ITEM 220.15	Water Gates and Gas Gates Lowered and Plated	EACH
ITEM 359	Gate Box Removed and Disposed	EACH
ITEM 381.4	Service Box Removed and Disposed	EACH
ITEM 384.3	Compensation for Unmarked or Mistakenly Damaged Water Facility	EACH

Add the following new subsection:

SUBSECTION 390
SPRINKLER MODIFIED

DESCRIPTION

390.20 GENERAL

All work shall be done in accordance with the relevant sections of the MassDOT 2023 Standard Specifications.

Where a sprinkler system is encountered during the construction, they will be removed and reset at new locations or modified as directed by the Engineer. The exact locations will be determined by the Engineer in the field to the satisfaction of the property owner.

CONSTRUCTION METHODS

390.60 GENERAL

All sprinkler heads and pipes etc. shall be removed carefully. The Contractor will be held responsible for any damage done during the removal and resetting of these items and shall replace or repair the damaged item as directed by the Engineer at his own expense.

Sprinkler heads and associated piping shall be relocated to new locations or eliminated as determined by the Engineer. All necessary piping shall be provided and installed by the Contractor**.**

COMPENSATION

390.80 METHOD OF MEASUREMENT

The measurement for sprinkler system modified shall be at the contract unit price bid per Each and shall include, full compensation for one (1) sprinkler head, ten (10) feet of plastic pipe and fitting, excavation, materials, pipe, sprinkler head, regrading, labor, tools, and any incidental items to provide complete in place installation. For additional length beyond ten (10) feet of plastic pipe and fitting for any individual sprinkler head or pipe replacement the measurement shall be a ratio of the total length divided by ten feet. Additional heads and accompanying pipe shall be a separate per EACH measurement.

390.81 BASIS OF PAYMENT

Sprinklers modified shall be at the contract unit price per Each and shall include, one (1) sprinkler head, ten (10) feet of plastic pipe and fittings and any incidental items to provide complete, in place installation with adjustments for payment as described in 390.80.

390.82 PAYMENT ITEM

ITEM 390	Sprinklers Modified	EACH

SUBSECTION 402
DENSE GRADED CRUSHED STONE FOR SUB-BASE

CONSTRUCTION METHODS

402.61 SPREADING AND COMPACTING
Add the following at the end of this subsection:

The overall depth of the Gravel for Base Course layer shall be no greater than 8 inches after compaction.

COMPENSATION

402.80 METHOD OF MEASUREMENT
Add the following at the end of this Subsection:

When quantities of Dense Graded Crushed Stone for Sub-base or Shoulder Backup are given in tons, a factor of 1.65 tons per cubic yard will be used to convert the measurement to cubic yards.

SUBSECTION 403
RECLAIMED BASE COURSE AND/OR SUB-BASE

DESCRIPTION

403.20 GENERAL
Add the following at the end of this subsection:

If there are no plans provided, then the maximum depth of reclaim shall be fifteen inches (15”) measured from the surface of the existing asphalt down or a lesser depth as directed by the engineer.

CONSTRUCTION METHODS

403.60 GENERAL
Add the following at the end of this subsection:

Sawcutting in conformance with Item 482 shall be done for end treatments for full road width in all reclaim areas.

COMPENSATION

403.80 METHOD OF MEASUREMENT
Delete sentence three of paragraph one and replace with:

The lowering and plating of gates and structures shall be paid per each as described below.

Add the following at the end of this subsection:

As described above the structures that are lowered and plated for reclaimed operations and then raised to final grade will be paid under item 220.1 for the lowering and plating. Additionally, they will be paid for under item 220.5 structure remodeled and finally under item 220 structure adjusted when brought to final grade.

Gates that are lowered and plated for reclaimed operations and then raised to final grade will be paid under item 220.15 for the lowering and plating. Additionally, they will be paid for under item 358 gate box

adjusted when brought to final grade. This will be full measurement for the lowering, plating, and raising of gates to final grade.

403.81 BASIS OF PAYMENT
Replace the second paragraph of this Subsection with the following:

The lowering and plating of castings will be paid separately under item 220.1 Catch Basins and/or Manholes lowered and plated and item 220.15 Water gates and Gas gates lowered and plated. The lowering and plating of the gas gates will be paid per each to the contractor both if they perform the work and if they coordinate the performance of the work through the respective utility company.

Replace the third paragraph of this Subsection with the following:

Removal and disposal of unsuitable material, surplus reclaimed material, or any sub-base/subgrade material necessary for grade changes shall be paid for at the contract unit price per cubic yard for Item 120.13, Unclassified Excavation of Excess Reclaimed Material.

Sawcutting for reclaim end treatment shall be inclusive to the reclaim item.

403.82 PAYMENT ITEMS
Add the following payments items:

ITEM 220.1	Catch Basins and/or Manholes Lowered and Plated	EACH
ITEM 220.15	Water Gates and Gas Gates Lowered and Plated	EACH

SUBSECTION 415
PAVEMENT MILLING

CONSTRUCTION METHODS

415.44 MILLING OPERATIONS
Add the following at the end of this subsection:

Any Petramat or other fabric material that is encountered during cold planer operations and not thoroughly bonded to the existing asphalt shall be removed and properly disposed of by the contractor prior to proceeding with resurfacing as directed by the engineer. Removal shall be performed with the use of a utility knife or other method approved in advance by the engineer.

Add the following subsection
415.49 MILLED KEYWAYS

Where proposed paving is to begin or end at project limits, a cut shall be made a maximum of 3 to 6 feet wide tapered x 1-1/2" deep or as directed by the Engineer, shall be made at the end stations to the area defined as the limits of paving. All permanent limits of the milled area shall be sawcut or otherwise neatly cut by mechanical means to provide a clean and sound vertical face. No vertical faces shall be left exposed to traffic. A temporary HMA ramp shall be placed at the butt joint before any traffic is allowed to use the excavated lanes unless otherwise directed by the Engineer. The HMA material will be paid for under Item 451. Payment for removal of the ramp will be included in the square yard price for initial old pavement excavation without any additional compensation.

COMPENSATION

415.80 METHOD OF MEASUREMENT

Add to the following to the end of this subsection

This price shall include all equipment, tools, labor, incidental materials, and removal and disposal of milled material. No additional payments will be made for multiple passes with the milling machine to remove the existing HMA surface to the grade specified.

The work shall also include, with no additional compensation for:

- Milling of existing concrete repair materials at grade.
- Providing protection to underground utilities from the vibration of the milling operation.
- Sawcutting milled limits; installing and removing any temporary transition.
- Performing handwork and removal of existing pavement, furnishing a sweeper and sweeping after milling.
- Removing and disposing of millings.
- Repairing surface defects as a result of the Contractor's negligence.

Any Petramat or other fabric material removed and disposed of as part of cold planer operations shall be measured by man-hours needed to perform the removal of the material on site.

415.81 BASIS OF PAYMENT

Add the following at the end of this subsection:

Any Petramat or other fabric material removed and disposed of as part of cold planer operations shall be paid by man-hours needed to perform the removal of the material on site.

415.82 PAYMENT ITEMS

Add the following payment items in numerical order:

ITEM 415.11	Pavement Milling (Keyways)	SQUARE YARD
ITEM 415.50	Removal and Disposal of Fabric Encountered During Cold Planing	MAN HOUR

Add the following Subsection

SUBSECTION 441
LIQUID CALCIUM CHLORIDE FOR BLENDING

DESCRIPTION

441.20 GENERAL

Liquid Calcium Chloride shall be used for blending into reclaimed base material as directed by the Engineer.

MATERIALS

441.40 MATERIALS

The calcium chloride solution shall be provided by the manufacturer as a true solution and shall not be reconstituted from flake calcium chloride. The calcium chloride shall meet the following material specifications (see ASTM Designation D98; AASHTO-M144).

Calcium Chloride	35% ± 1%
Alkali Chloride as NaCl	2% max.
Magnesium as MgCl	0.1%
Typical (in lbs. per gallon)	
Calcium Chloride	5.05
Sodium Chloride	0.2
Magnesium Chloride	0.004
Calcium Sulfate	0.004
Water	6.002
Total	11.26

CONSTRUCTION METHODS

441.60 GENERAL

The distributor for calcium shall be capable of applying liquid calcium chloride in accurately measured quantities at any rate between 0.1 to 2.0 gallons per square yard of roadway surface, at any length of spray bars up to 20 feet. The distributor shall be capable of marinating a uniform rate of distribution of material regardless of change in grade, width or direction of the road. The distributor shall be equipped with a Digital Volumetric Accumulator capable of measuring gallons applied and distance traveled. The volume and measuring device shall be equipped with a power unit for the pump so that application is by pressure, not gravity. The spray nozzles and pressure system shall provide a sufficient and uniform fan-shaped spray of material throughout the entire length of the spray bar at all times while operating and shall be adjustable laterally and horizontally. The spray shall completely cover the roadway surface receiving the treatment.

After the first pulverization of the existing road pavement, one application of calcium chloride totaling 0.75 gallon per square yard shall be applied to the reclaimed material. The aggregate mass shall then be pulverized again to ensure proper asphalt, gravel and calcium chloride blending to the desired depth. Following base compaction, shaping, regrading and final compaction a final capping of 0.25 gallons per square yard of calcium chloride shall be applied.

COMPENSATION

441.80 METHOD OF MEASUREMENT

Liquid Calcium Chloride for Blending shall be measured by the gallon used.

441.81 BASIS OF PAYMENT

Payment for Liquid Calcium Chloride for Blending shall be paid for at the contract unit price per gallon used. Payment will be for the actual quantity applied that is not to exceed the quantity as calculated based on the aforementioned application rates and surface applications area as shown on the plans or as determined by the Engineer.

441.82 PAYMENT ITEMS

ITEM 441	Liquid Calcium Chloride for Blending	GALLON

SUBSECTION 460
HOT MIX ASPHALT PAVEMENT FOR LOCAL STREETS

CONSTRUCTION METHODS

460.42 WEATHER LIMITATIONS
Replace all references to 'April 1st' with 'Patriots Day'

Add the following sentence to the end of paragraph 2;

The 'sudden rain' provision is ONLY in the case of unforecasted rain, in all other cases the mix will be forfeited by the contractor with no compensation including that mix that is in transit.

460.43 PREPARATION OF UNDERLYING SURFACE
C. Patching Existing Pavement Courses.
Replace sentence 2 of paragraph 4 with the following:

The hot mix asphalt pavement shall be laid in courses with the top course 1 ½ inches after rolling and previous courses no greater than 2 inches after rolling and shall match the total thickness of the existing asphalt or as directed by the engineer. It is anticipated that HMA for patching will need to be hand laid. Sawcutting asphalt in accordance with Item 482.3 shall be performed for all roadway patching.

COMPENSATION

460.90 METHOD OF MEASUREMENT
A. Patching
Add the following at the end of this subsection:

When quantities of HMA for patching are measured in cubic yards (such as patching), a factor of 1.70 tons per cubic yard will be used to convert the measurement to tons.

Sawcutting shall be measured by the linear foot of asphalt cut.

460.93 PAYMENT ITEMS
Add the following item:

ITEM 451.	HMA for Patching	TON
ITEM 472	Temporary Asphalt Patching	TON
ITEM 482.3	Sawcutting	LINEAR FEET

SUBSECTION 460
HOT MIX ASPHALT PAVEMENT (HMA) FOR LOCAL ROADS

CONSTRUCTION METHODS

460.49 HOT MIX ASPHALT JOINTS
Add the following at the end of this subsection:

The tack coat material, when applied to HMA overlays, shall be applied by a pressure distributor. All nozzles on the distributor shall be open and functioning. All nozzles shall be turned at the same angle to the spray bar. The nozzles shall be offset at an angle from the spray bar to prevent the fan from one nozzle from interfering with the fan from another. Proper nozzle angle shall be as determined by the Manufacturer of the

distributor spray bar. The spray bar shall be adjusted so that it is at the proper height above the pavement surface to provide a triple overlap spray for a uniform coverage of the pavement surface. A triple lap application requires that the nozzle spray patterns overlap one another such that every portion of the pavement receives spray from exactly three nozzles.

The use of tack wagons/trailers shall only be allowed under Item 451 and Item 472 or when the Engineer agrees that the area is inaccessible to the distributor. Regardless of application method the tack application rates shall meet the requirements below. The use of gravity distributors is not allowed.

In all areas of mill and overlay repair, saw cutting or milling existing HMA will be required to make an acceptable joint/interface to existing pavement. Tack coat will be applied liberally at the milled pavement surface and all vertical edges/joints prior to new HMA overlay.

Tack coat and sand shall be applied to all joints composed of hot mix asphalt immediately after paving or as directed by the Engineer.

460.63 PREPARATION OF UNDERLYING SURFACE
Replace the first sentence with the following:

There is zero tolerance for the use of petroleum products (e.g. diesel, kerosene, etc.) as a release or cleaning agent in the manufacture, loading, transporting, and placement of HMA materials. The Contractor's shall ensure conformance with requirement.460.30

HMA mixtures shall be placed only upon properly prepared and approved surfaces that are clean from foreign material, including grass and vegetation, and dry; and when weather conditions are suitable.

D. Leveling Courses
Add the following at the end of this subsection:

It should be noted that roads could require several lifts of leveling material in order to eliminate water problems in low spots prior to placing HMA top course.

COMPENSATION

460.90 METHOD OF MEASUREMENT

B. Tack Coat
Add the following at the end of this subsection:

Tack coat and sand shall be applied to all joints composed of hot mixed asphalt immediately after paving or as directed by the Engineer. Tack coat and sand, when applied to joints in accordance with subsection 460.49, shall be considered incidental to Item 460 for local roads, with no additional measurement or payment to be made.

Add the following at the end of this subsection:

Price adjustments for hot mix asphalt (all asphalt items under section 460) will be made in accordance with Document 00811 published by MassDOT revised July 8, 2016. Asphalt adjustment shall be documented on each invoice with no adjustment shown on invoice one. Invoice two will include the adjusted asphalt cost from the invoice one tonnage and so on. The contractor shall provide documentation and calculations demonstrating the proper adjustment. The base bid for liquid asphalt on this contract shall be the period price at the date of the bid opening as published by MassDOT on its website.

Insert the following new section in numerical order:

SUBSECTION 473
RANDOM CRACK SEALING – POLYMER & CRUMB RUBBER MODIFIED (PCRM) ASPHALT COMPOUND WITH REINFORCING FIBERS

DESCRIPTION

473.20 GENERAL

The work covered by this section of the specification consists of furnishing all plant, labor, equipment and materials necessary to perform all operations in connection with the cleaning and sealing of construction and random cracks in Hot Mix Asphalt pavements, including vegetation removal and sterilization of cracks, where necessary.

MATERIALS

473.40 GENERAL

Crack sealant shall be a modified asphalt-fiber compound designed specifically for improving the strength and performance of the parent asphalt sealant.

a) **The asphalt binder** shall consist of a blend of neat asphalt binder, chemically modified crumb rubber (CMCR), and a polymer package, all of which meet the following specifications:
   - The binder will meet PG 64-28E requirements after modification including:
     - PG grade requirements of AASHTO M320
     - Requirements of AASHTO TP70/MP19
   - Modification, at a minimum, shall consist of 7% crumb rubber, and the maximum particle size for the recycled tire rubber shall be 80 mesh (#80 sieve)
   - The asphalt supplier shall provide testing for both the neat and modified asphalt binders
   - See below for typical modified test results for 64-28E with crumb rubber:

DSR ORIGINAL

- kPa >1.00 @ 64° C. Fail temp = 76+° C

DSR RTFO

- kPa >2.20 @ 64° C. Fail temp = 76+° C

MSCR

- JNR (MSCR unit of measure): 3.2 E <0.5% @ 64° C
- R3200 (Average % Recovery): >70%

DSR PAV

- kPa <6000 @ 64° C

BBR

- Stiffness <300 @ -18° C. M-Value >0.300 @ -18° C

b) **The fiber reinforcing materials** shall be short-length polyester fibers having the following properties:

Length*	0.25 in. ± 0.02 in.
Elongation at Break (ASTM D2256-90)	35% ± 3%
Melting Point (ASTM D3418-82)	>475°F (246°C)
Crimps/Inch (ASTM D3937-90)	None
Cross Section	Round
Denier (ASTM D1577-90)	4.5 Nominal dpf
Tensile Strength (ASTM D2256-90)	>70,000 psi
Diameter	0.0008 in. **
Specific Gravity (ASTM D792-91)	1.32 to 1.40

** At temperatures ranging from ambient to maximum finished product mix temperature*
*** Subject to Normal Variations*

c) **Modifying Compound:** The modified asphalt-fiber compound shall be mixed at a rate of 8% fiber weight to weight of asphalt cement. This compound having the same chemical base provides compatibility and exhibits excellent bond strengths. The fiber functions to re-distribute high stress and strain concentrations that are imposed on the sealant by thermal sources, traffic loading, etc.

CONSTRUCTION METHODS

473.60 GENERAL

Preparation of Cracks

a) **Debris and Vegetation Removal:** All cracks shall be blown clean and sterilized by use of a propane air torch generating 2,000°F and 3,000' feet/second velocity to eliminate all vegetation, dirt, moisture and seeds. All debris removed from the cracks shall be removed
b) **General:** No crack sealant material shall be applied in wet cracks or where frost, snow or ice is present; or when the ambient temperature is below 50°F.

Preparation and Placement of Sealant

a) The asphalt-fiber compound shall be thoroughly mixed for a minimum of one hour before application can begin. To ensure a uniform fiber distribution in the sealant, and also to limit fluctuations in the application temperature of the blended material, the Contractor must have a full melter kettle of sealant mixed, heated to the proper application temperature, and ready for testing at the start of each work day. Once that batch of sealant is emptied from the melter kettle, crack sealing operations will cease for the remainder of the day. No new materials will be allowed to be added to the melter kettle during the work day under any circumstances. Minimum application temperature shall be 320°F.
b) Sealant shall be delivered to the pavement cracks through a high-pressure hose line and applicator shoe. Diameter of the applicator shoe is not to exceed two (1") inches. Once the pavement cracks are sealed, the width of the sealant on the pavement (overbanding) shall be no greater than three (1") inches. When traffic requires immediate use of the roadway, a boiler slag aggregate shall be broadcast over the cracks to prevent the sealant from being picked up at no additional cost to the Owner.

Workmanship

All workmanship shall be of the highest quality, and any excess of spilled sealant shall be removed from the pavement by approved methods and discarded. Any workmanship determined to be below the high standards of the particular craft involved will not be accepted, and will be corrected and/or replaced as required by the Owner.

Performance

a) It is the intention of the Owner not to award a contract for this work under this or any other proposal if the contractor cannot furnish satisfactory evidence that he has the ability and experience to perform this class of work, and that he has sufficient capital and equipment to enable him to prosecute the work successfully and to complete it within the time named in the contract. The Owner reserves the right to reject this or any other proposal, or to award the contract as is deemed to be in the best interest of said Owner.

b) Properly formulated and mixed asphalt fiber compound overbanding shall not be greater than one inches (1") in width. Penalties will be imposed upon the Contractor for overbanding beyond one inches (1").

c) The Contractor must submit the following with his bid proposal:
- A list of six (6) jobs which he has successfully completed with the polymer and crumb rubber modified asphalt compound with reinforcing fibers specified herein, giving the name and address of these projects so they can be investigated prior to the award of the contract.
- The trade name of the crack sealant the contractor intends to use.
- The manufacturer of the crack sealant the contractor intends to use.

d) The Owner will require the Contractor to successfully perform a 200' foot test strip in the field prior to commencing work under the contract.

e) Manufacturer's certificate of material compliance will be furnished to the Owner certifying conformance to the above material specifications, including the following:
- Performance Grade of Unmodified Asphalt: **PG 64-28S** (standard)
- AASHTO M-320, Table 1
- 7% chemically-modified crumb rubber (CMCR)
  - Composed of 100% 80-mesh recycled tire rubber
- 3-4% specially formulated polymer package
- Performance Grade of Modified Asphalt: **PG 64-28E** (able to withstand "extremely heavy" traffic loads)
- AASHTO M-320, Table 1
  - "E" Jnr 3.2 kPa @ 64^0C: **<0.5%**
  - R3200 (Average % Recovery) @ 3.200 kPa: **>70%**
- 8% polyester reinforcing fibers

473.61 EQUIPMENT

Equipment used in the performance of the work required by this section of the specification shall be subject to approval by the Owner, and maintained in a satisfactory working condition at all times.

(a) **Air Compressor:** Air compressors shall be capable of furnishing not less than 100 cubic feet of air per minute at not less than 90 lbs. per square inch pressure at the nozzle. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water.

(b) **Broom or Sweeper:** Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt and dust from the cracks.

(c) **Melter:** The unit used to melt or maintain the crack sealant compound at the recommended application temperature shall be the indirect fired type. It shall be equipped with a remote heat exchanger and hot oil

circulation pump capable of maintaining a consistent temperature of the heat transfer oil. The heat transfer oil shall be circulated to all sides and the bottom of the vat containing the crack sealant compound making a continuous loop back to the heat exchanger and having a flash point of not less than 600°F. The melter shall be equipped with a satisfactory means of agitating the crack sealant at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or by a circulating gear pump attached to the melter. The melter must be equipped with a thermostatic control calibrated between 200°F and 550°F, and must be capable of pumping an 8% fiber content blend.

COMPENSATION

473.80 METHOD OF MEASUREMENT

The quantity to be measured for payment will be the number of gallons of crack sealing actually applied, and this quantity shall be determined and verified daily.

473.81 BASIS OF PAYMENT

The accepted quantity of crack sealing will be paid for at the contract unit price per gallon of the type specified in the proposal, which shall be full compensation for furnishing, transporting, handling and placing the material specified and furnishing of all labor, tools, equipment and incidentals for the satisfactory completion of this item.

Asphalt Price Adjustments

Contractor's bid prices shall be based upon the current State DOT asphalt cement index posted exactly two (2) weeks prior to the due date for receipt of bids ("Bid Index"). If the posted State DOT asphalt cement index in place when the work is performed differs by more than 5% from the Bid Index, then contractor's invoices shall include price adjustments for the asphaltic materials (Micro-Surfacing, crack sealing, chip seal phase of cape seals, and tack coat), and such adjustments shall be proportionate to the mix design asphalt content (%) of each of these materials.

473.82 PAYMENT ITEMS

ITEM 473.	Crack Sealing	GALLON

SUBSECTION 500
CURB AND EDGING

DESCRIPTION

501.20 GENERAL

Add the following at the end of this subsection:

Granite Curb shall be set in a concrete bed. The concrete bed shall be left flush with intermediate (binder) layer as shown on the attached detail.

Sawcutting is required in advance of setting curb and is incidental to the item as described in subsection 501.80.

MATERIALS

501.40 GENERAL
Add the following at the end of this subsection:

M4 Cement Concrete (4,000 PSI)

CONSTRUCTION METHODS

501.65 FILLING ABOUT TRENCH
Replace this section with the following:

After the curb, curb corners, curb inlets, and edging is set, the space between it and the wall of the trench shall be filled with cement concrete (M4-4,000 psi). to the height of the top of the existing asphalt layer, as shown on detail or as directed by engineer.

COMPENSATION

501.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

No additional measurement shall be made Cement Concrete installed as part of the installation of Granite Curb.

Sawcutting shall be incidental to the items for Granite curb and Granite edging.

501.81 BASIS OF PAYMENT
Add the following at the end of this subsection:

Cement Concrete shall be considered incidental to the item for Granite Curb with no additional payment made.

Sawcutting shall be incidental to the items for Granite curb and Granite edging.

501.82 PAYMENT TERMS
Add the following at the end of this subsection:

ITEM 451.	HMA for Patching	TON

SUBSECTION 665
FENCES AND GATES REMOVED AND RESET, AND REMOVED AND STACKED

Change the title of this Section to read:

SUBSECTION 665
FENCES AND GATES REMOVED AND RESET, STACKED OR DISPOSED

DESCRIPTION

665.20 GENERAL
Insert the word "disposing," after the word "resetting,"

CONSTRUCTION METHODS

Add the following new Subsection:
665.63 DISPOSING

All fencing to be removed and disposed shall be disposed of by the contractor outside and away from the limits of the project, with no additional measurement or payment.

COMPENSATION

665.80 METHOD OF MEASUREMENT
Replace the first six words of the second paragraph with "Fence that is removed and stacked or disposed".

665.81 BASIS OF PAYMENT
Replace the first six words of the second paragraph with "Fence that is removed and stacked or disposed".

665.82 PAYMENT ITEMS
Add the following payment item in numerical order:

ITEM 669.1.	Fence Removed and Disposed	LINEAR FEET

SUBSECTION 670
SEDIMENTATION FENCE

Change the title of this Section to read:

SUBSECTION 670
SEDIMENTATION FENCE AND COMPOST SOCK

DESCRIPTION

670.20 GENERAL
Add the following at the end of this subsection:

Sediment fences and/or compost sock shall be erected in all areas adjacent to wetland areas before any construction activity commences to prevent overflow of unsuitable materials into adjacent areas of streams.

The Contractor shall furnish and install degradable compost socks for perimeter berm at locations shown on the as directed by the engineer. Removal shall be inclusive to the item, and will be conducted as directed by the Engineer. The compost sock for perimeter berm shall be used as such and is not intended for areas which may receive concentrated flows such as channels or restricted outlets.

MATERIALS

670.40 MATERIALS
Replace the first sentence of this subsection with the following:

The siltation fence shall be a woven material and meet the following design criteria:

	Test Method	Values
Grab Strength	ASTM D-1682	90 lbs
Elongation	ASTM D-1682	15% min. 50% max. @ 45 lbs.
Permitivity	ASTM 4491	0.01 (Sec. 1)
EOS (sieve No.)	----	20
U.V. Resistance	ASTM D-4355	70
(500 hours exposure)		

The compost sock shall be a biodegradable material and meet the following design criteria:

- A mesh tube, oval to round in cross section, 12 inches in diameter. Sock must have a minimum durability of one year after installation.
- Composed of a knitted biodegradable or photodegradable material with 1/8 to 3/8 inch openings. Fabric must be clean; evenly woven; free of encrusted concrete or other contaminated materials; and free from cuts, tears, broken or missing yarns and thin, open, or weak places.

The compost media shall meet the following design criteria:

- Compost may be derived from green material consisting of chipped, shredded, or ground vegetation; or clean recycled wood products.
- Compost must not be derived from mixed municipal solid waste and be reasonably free of visible contaminates. Compost must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Compost must not possess objectionable odors. 2.3 Chemical, Physical and Biological Parameters.
- Compost products specified for use in this application must meet the criteria specified in Table 1, below.
- Only compost products that meet all applicable state and federal regulations pertaining to its production and distribution may be used in this application. Approved compost products must meet related state and federal chemical contaminant (e.g., heavy metals, pesticides, etc.) and pathogen limits pertaining to the feedstocks (source materials) in which it is derived.

Parameters	**Units of Measure**	**Characteristics**
pH2	pH units	5.0-8.5
Soluble salt concentration (electrical conductivity)	dS/m (mmhos/cm)	Maximum 5
Moisture Content	% wet weight basis	30-60
Organic Matter Content	% dry weight basis	25-65
Particle Size	% passing a selected mesh size, dry weight basis	3”, 100% passing 1”, 90% to 100% passing ¾”, 70% to 100% passing ¼”, 30% to 75% passing Maximum: particle size length of 6” (no more than 60% passing ¼” in high rainfall/flow rate situations)
Stability Carbon Dioxide Evolution Rate	Mg CO2-C per g OM per day	<8
Physical Contaminants (man-made inerts)	%, dry weight basis	<1

Note: The composition of this media is similar to the vegetated filter berm media from AASHTO R 51. Very coarse (woody) composts that contain less than 30% of fine particles (1mm in size) shall be avoided, as

optimum reductions in total suspended solids (TSS) is desired and berms may be seeded.

Renumber subsection 670.40 to read 670.60.

CONSTRUCTION METHODS

670.60 CONSTRUCTION METHODS

Add the following at the end of this subsection:

Temporary sediment fences, or portions thereof, may be left in place at the discretion of the Engineer. Sediment fence shall not be removed until approved by the Conservation Commission and the Engineer.

Installation and maintenance of compost sock;

Site Preparation

To ensure optimum performance, cut down or remove heavy vegetation, and level uneven surfaces to ensure that the filter sock uniformly contacts the ground surface.

Installation

- Prior to installation, clear the area of obstructions including rocks, clods, and debris greater than one inch
- Fill socks uniformly with compost to the desired length such that the logs do not deform. Secure ends.
- When more than one compost sock is required to achieve desired length, join socks longitudinally with a 1 foot 6 inch overlap.
- Compost sock may be installed using installation method Type 1, Type 2, or a combination:
  - Installation method Type 1: – Place directly on the ground with good contact with the finish grade. – Secure with wood stakes every 4 feet along the length of the compost sock. – Secure the ends of the compost sock by placing a stake 6 inches from the end of the compost sock. – Drive the stakes into the soil so that the top of the stake is less then 2 inches above the top of the compost sock.
  - Installation method Type 2: – Place directly on the ground with good contact with the finish grade. – Secure with rope and notched wood stakes. – Drive stakes into the soil until the notch is even with the top of the compost sock. – Lace the rope between stakes and over the compost sock. Knot the rope at each stake. – Tighten the compost sock to the surface of the slope by driving the stakes further into the soil.
- Install compost sock approximately parallel to the slope contour or as otherwise specified in the SWPPP or ordered by the Engineer.

Maintenance

- Inspect compost socks regularly, and after each rainfall event, to ensure that they are intact and functioning correctly. Remove sediment that builds up behind the sock before it interferes with the functionality of the sock. Deposit the removed sediment within the project limits so that the sediment is not subject to erosion by wind or by water.
- Repair or replace split, torn, or unraveling socks. Replace broken or split stakes. Sagging or slumping compost socks must be repaired with additional stakes or replaced. Correct locations where rills and other evidence of concentrated runoff have occurred beneath the socks. Compost socks must be repaired or replaced within 24 hours of identifying the deficiency.
- Remove sock mesh tubes when directed by the Engineer. Cut mesh and empty sock contents in place and rake to distribute evenly.

COMPENSATION

670.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Compost sock shall be measured per linear foot complete in place and shall include removal and disposal.

670.82 PAYMENT ITEMS
Add the following item:

ITEM 697.1	Compost Sock	LINEAR FEET

Insert the following new section in numerical order:

SUBSECTION 697
SILT SACK

DESCRIPTION

697.20 GENERAL

The work under this item shall conform to the relevant provisions of Section 670 of the Supplemental Specifications and the following:

Contractor shall provide and maintain silt sack at all existing catch basins within the project limits and as required by the Engineer.

MATERIALS

697.40 GENERAL

The silt sack shall be manufactured from a woven polypropylene fabric with an oil-absorbent pillow insert or made completely from an oil-absorbent fabric with a woven pillow insert that meets or exceeds the following specifications.

PROPERTIES	TEST METHOD	UNITS
Grab Tensile Strength	ASTM D-4632	265 LBS
Grab Tensile Elongation	ASTM D-4632	20%
Puncture	ASTM D-4833	135 LBS
Mullen Burst	ASTM D-3786	420 PS
Trapezoid Tear	ASTM D-4533	45 LBS
UV Resistance	ASTM D-4355	90%
Apparent Opening Size	ASTM D-4751	20 US SIEVE
Flow Rate	ASTM D-4491	200GALMIN/SQ FT
Permittivity	ASTM D-4491	1.5 SEC-1

All silt sacks must have an overflow to accommodate rain events.

CONSTRUCTION METHODS

697.60 GENERAL

The work under this item shall include the periodic maintenance of the sacks that have become clogged with debris. The Contractor shall keep silt sacks clear during construction and shall not remove them until pavement is in place and the seeded areas have taken root. The cost of replacing the silk sack shall be incidental to this item. No separate payment shall be for additional silt sacks used at a single location.

The Contractor shall be responsible for field measuring all existing and new drainage structures to ensure that the proper size sediment collection sack is provided for each structure.

Disposal of Accumulated Material

All material removed from the silt sacks shall be properly handled and disposed of by the Contractor in accordance with all Massachusetts Department of Environmental Protection (DEP) regulations, policies and guidelines.

Material removed shall be transported immediately to the place of disposal in machines or trucks that will not spill the material along the roadway. Any material falling on the roadway shall be removed at the Contractor's own expense.

NOTE: The Contractor should be aware that many landfills may require testing and analysis of the material prior to accepting it for disposal at the facility. The Contractor shall be aware that in the event that the test results indicate a hazardous waste that cannot be land filled. The Contractor shall be responsible for all costs associated with adhering to special regulations regarding disposal of waste materials removed from silt sacks.

COMPENSATION

697.80 METHOD OF MEASUREMENT

Silt Sack will be measured for payment by the each, complete in place.

697.81 BASIS OF PAYMENT

Silt Sack will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment and incidental costs required to provide, install, maintain and remove silt sacks in locations required by the Engineer for the duration of the project.

697.82 PAYMENT ITEMS

ITEM 697.2	Silt Sack	EACH

SUBSECTION 700
INCIDENTAL WORK

Replace subsection 701 with the following:

INTERIM SUBSECTION 701: CEMENT CONCRETE SIDEWALKS, PEDESTRIAN CURB RAMPS, AND DRIVEWAYS

DESCRIPTION

701.20: GENERAL

This work shall consist of the construction of cement concrete sidewalks, pedestrian curb ramps, and driveways in accordance with the specifications and within the tolerances established on the plans. Minimum clear path of travel for all walkways shall be no less than 52" per Town of Lexington Standards and as shown on the standard details.

MATERIALS

701.30: GENERAL

Materials shall meet the requirements specified in the following Subsections of Division III, Materials except as noted herein:

Gravel Borrow, Type b M1.03.0

Cement Concrete (≥ 4,000 psi).....M4.02.00

Preformed Expansion Joint Filler.....M9.14.0[1]

[1] Preformed expansion joint filler shall conform to Subsection M9.14.0 or ASTM D8139.

Fiber Mesh shall meet the following requirements;

Fiber mesh fibers (100% virgin polypropylene, collated, fibrillated fibers) at a rate of 1.0 - 1.5 lb. per cubic yard of concrete shall be added for reinforcement. Fiber mesh shall be FIBERMESH 150, manufactured by PROPEX Concrete Systems or an approved equal. Installation shall be per manufacturer's recommendations.

The following best practices may be incorporated into the cement concrete mix design at no additional cost to the Department as identified herein.

A. Combined Aggregate System.

The combined aggregate system for the mix design may be analyzed using the Tarantula Curve, Shilstone Chart, fineness modulus, and coarse aggregate content to enhance the properties of the concrete.

B. Tarantula Curve.

The combined aggregate system for the mix design may be analyzed using the Tarantula Curve to evaluate potential properties of the concrete, including workability, segregation, edge slumping, surface finishing, and cohesion as shown in ***Table 701.30-1: Tarantula Curve Particle Size Distribution***

Table 701.30-1: Tarantula Curve Particle Size Distribution

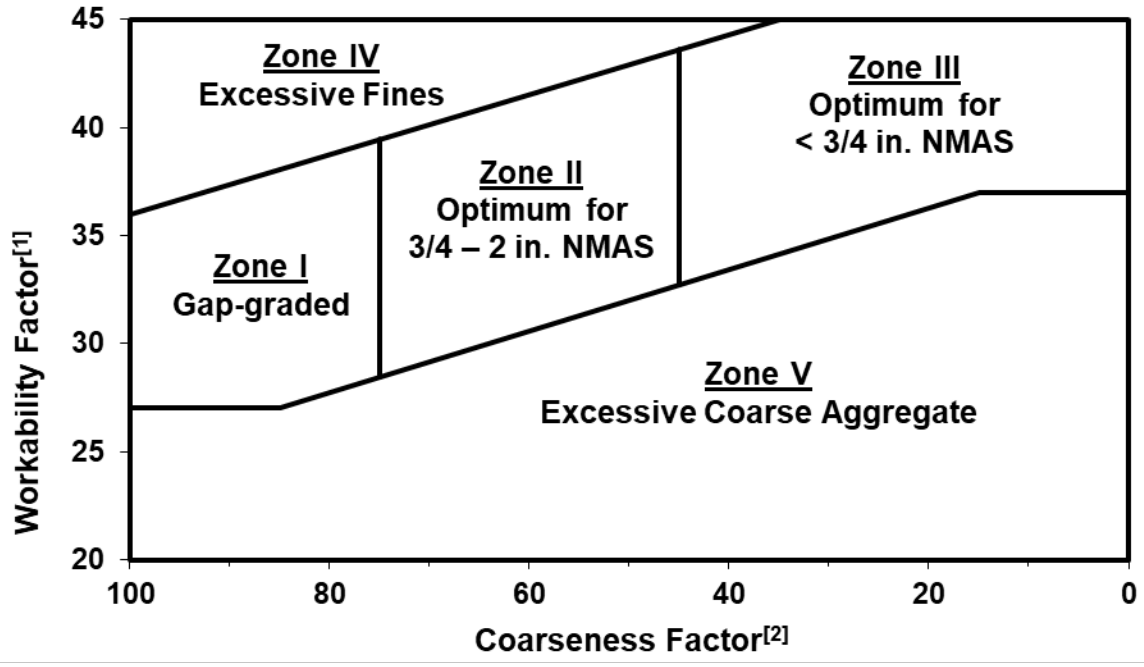
Sieve Opening	Percent by Mass Targets (%)		Percent by Mass Retained (%)		
	Passing	Retained			
1-1/2 in.	100	–	–	–	–
1 in.	92	8	0 – 16	–	–
3/4 in.	82	10	0 – 20	–	–
1/2 in.	69	13	4 – 20	–	–
3/8 in.	56	13	4 – 20	–	–
No. 4	43	13	4 – 20	–	–
No. 8	37	6	0 – 12	Coarse Sand 20 – 40	–
No. 16	31	6	0 – 12		–
No. 30	18	13	4 – 20		Fine Sand 24 – 34
No. 50	5	13	4 – 20	–	
No. 100	0	5	0 – 10	–	
No. 200	0	0	0 – 2	–	

C. Shilstone Workability-Coarseness Chart.

The combined aggregate system for the mix design may be analyzed using the Shilstone Workability-Coarseness Chart, to evaluate potential properties of the concrete, including workability.

Table 701.30-2: Shilstone Workability-Coarseness

Zone	Property	Cause
Zone I	Gap-graded; High potential for segregation during placement and consolidation; Cracking, blistering, spalling, and scaling	Deficiency in intermediate particles; Non-cohesive
Zone II	Optimum mixture for nominal maximum aggregate size from 2 in. – ¾ in.	Optimized workability factor and coarseness factor
Zone III	Optimum mixture for nominal maximum aggregate size < ¾ in.	Optimized workability factor and coarseness factor
Zone IV	Sticky; High potential for segregation during consolidation and finishing; Variable strength, high shrinkage, cracking, curling, spalling, and scaling	Excessive fines
Zone V	Rocky; Lacking plasticity	Excessive amount of coarse and intermediate aggregate



[1]

Figure 701.30-1: Shilstone Workability-Coarseness Chart

The workability factor is determined by the equation WF = W + (C - 564) / 38, where WF = workability factor, W = percent passing No. 8 sieve and C = total cementitious materials content. The coarseness factor is determined by the equation CF = (Q/R) / 100, where CF = coarseness factor, Q = cumulative percent retained on 3/8 in. sieve and R = cumulative percent retained on No. 8 sieve.

D. Fineness Modulus.

The combined aggregate system for the mix design may be analyzed using the fineness modulus, to evaluate potential properties of the concrete, including the fineness or coarseness of the mix design and estimating the design proportions of fine and coarse aggregates. The coarseness of the mix design increases as the fineness modulus increasers. The fineness modulus is determined by calculating the total cumulative percentages by mass retained on each designated sieve and dividing by 100.

E. Coarse Aggregate Content.

The combined aggregate system for the mix design may be analyzed using the coarse aggregate content. The coarse aggregate content is determined by calculating the total cumulative percentages by mass retained on the No. 4 sieve.

F. Paste System.

The quality of the paste system is determined by the water-cementitious ratio, air content, cementitious materials, and chemical admixtures incorporated into the mix design.

G. Water-Cementitious Ratio.

The water-cementitious ratio for the mix design may be analyzed to evaluate potential properties of the concrete, including strength, concrete and reinforcement bonding, and resistance to freezing, thawing, de-icing, sulfate reaction, corrosion of steel reinforcement, drying shrinkage, cracking, and volume change from wetting and drying. The water-cementitious ratio is determined by calculating the total water content by mass and dividing by the total cement and supplementary cementitious material (SCM) content by mass. The recommended water-cementitious ratio design target is identified in Table 701.30-3. The water-cementitious ratio shall be less than or equal to 0.45.

Table 701.30-3: Freezing, Thawing, and De-icing Resistance

Exposure Class	Severity	Condition	Water-Cementitious Ratio	
			Recommendation	Requirement
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	≤ 0.40	≤ 0.45

H. Air Content.

The air content for the mix design may be analyzed to evaluate potential properties of the concrete, including strength and resistance to freezing, thawing, de-icing, and sulfate reaction. The recommended air content design targets are identified in Table 701.30-4.

Table 701.30-4: Freezing, Thawing, and De-icing Resistance

Exposure Class	Severity	Condition	Nominal Maximum Aggregate Size (in.)	Air Content Target Recommendation (%)
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	3/8	7.5
			1/2	7.0
			3/4	6.0

I. Cement and Supplementary Cementitious Materials Content.

The cement and supplementary cementitious materials content incorporated into the mix design shall promote quality properties of the cement concrete, including resistance to alkali silica reaction, freezing, thawing, de-icing, and sulfate reaction. Incorporation of supplementary cementitious materials (SCM) in cement concrete may affect workmanship properties, including workability, bleed rate, setting time, and other properties. Adequate adjustments in Contractor workmanship practices, including placement, finishing, curing, and other construction practices shall be required to account for these changes in properties and to prevent scaling due to freezing, thawing, and de-icing cycles. The cement and supplementary cementitious materials content shall meet the design criteria identified in Table 701.30-5.

Table 701.30-5: Alkali Silica Reaction and Freezing, Thawing, and De-icing Resistance[1][2]

Exposure Class	Severity	Condition	Material	Replacement by Weight of Cement (%)
F3	Very Severe	Exposed to freezing and thawing cycles and accumulation of snow, ice, and de-icing chemicals; Frequent exposure to water	Low Alkali Cement (≤ 0.60% Alkalinity)	–
			Blended Hydraulic Cement[3]	–
			Fly Ash (Class F)	15 – 30
			Slag (Grade 100 or 120)	25 – 50
			Silica Fume	5 – 10
			Total SCM	≤ 50
			Total Fly Ash and Silica Fume	≤ 35

[1] Acceptable replacement by weight of cement for alkali silica reaction resistance shall be determined by the alkali silica reaction resistance performance test results and the criteria identified in Table 701.73-1: Minimum Acceptance Sampling and Testing Requirements.
[2] Test results meeting the alkali silica reaction resistance performance criteria of Table 701.30-6: Alternative Performance Evaluation to Alkali Silica Reaction Resistance Design Criteria may supersede the replacement by weight of cement design criteria.
[3] SCMs in blended hydraulic cement shall meet the criteria identified for fly ash, slag, and silica fume.

Table 701.30-6: Alternative Performance Evaluation to Alkali Silica Reaction Resistance Design Criteria

Method	Quality Characteristic	Criteria
C295	Petrographic Examination for Potential Alkali Aggregate Reactive Constituents and Deleterious Materials in Aggregate[1]	–
	Optically Strained, Microfractured or Microcrystalline Quartz (%)	≤ 5.0
	Chert or Chalcedony (%)	≤ 3.0
	Trydimite or Cristobalite (%)	≤ 1.0
	Opal (%)	≤ 0.5
	Natural Volcanic Glass (%)	≤ 3.0
T 380	Alkali Silica Reaction Resistance: Expansion of Miniature Concrete Prisms at 56 days (%)	≤ 0.03[2]

[1] Examination of aggregate shall be performed and reported to identify and quantify potential alkali-aggregate reactive constituents and deleterious materials in aggregate, as defined in ASTM C294 Standard Descriptive Nomenclature for Constituents of Concrete Aggregates and ASTM C295 Standard Guide for Petrographic Examination of Aggregates for Concrete.
[2] 56-day expansion results greater than 0.03 but less than or equal to 0.04 shall be considered non-reactive if the average two-week rate of expansion from day 56 to day 84 is less than or equal to 0.01%, otherwise, expansion results shall be considered reactive.

J. Chemical Admixtures.

Chemical admixtures may be incorporated into the mix design to enhance the properties of the concrete.

Table 701.30-7: Chemical Admixtures

Spec.	Type	Chemical Admixture	Properties
M 194	A	Water-Reducing	Increases Workability and Air Content; Decreases Water Demand (5 – 10%, 3 – 6 in. Slump)
	B	Retarding	Increases Initial and Final Setting Time, Air Content, Long-Term Strength; Offsetting of Accelerating Effect of Hot Weather; Decreases Early-Age Strength
	C	Accelerating	Increases Early-Age Strength; Decreases Initial and Final Setting Time
	D	Water-Reducing and Retarding	Type A and Type B Admixture Properties
	E	Water-Reducing and Accelerating	Type A and Type C Admixture Properties
	F	High Range Water-Reducing	Increases Workability (More Effective than Type A), Air Content, Early-Age Strength, and Ultimate Strength; Decreases Water Demand (12 – 40%, > 6 in. Slump) and Permeability
	G	High Range Water-Reducing and Retarding	Type F and Type B Admixture Properties
	S-SRA	Shrinkage Reducing	Increases Setting Time; Decreases Drying Shrinkage Cracking and Bleed Rate
	S-CRA	Crack Reducing	Decreases Cracking (More Effective than SRAs) and Crack Width
M 154	AEA	Air-Entraining	Increases Cohesion, Workability, Stabilization of Air Bubbles, Resistance to Freezing, Thawing, and De-icing, Resistance to Alkali-Reactive Environment, and Resistance to Sulfate Reaction
M 194[1]	MRWRA	Mid Range Water-Reducing	Type A and Type F Admixture Properties; Increases Workability (Especially Concrete with SCMs); Decreases Water Demand (6 – 12 %, 5 – 8 in. Slump)
C1622	CWA	Cold Weather	Increases Hydration Rate; Decreases Freezing Point of Mixing Water

[1] Mid range water-reducing admixtures (MRWRA) may meet either water-reducing (A) or high range water-reducing (F) admixture criteria.

K. Paste Content.

The paste content for the mix design may be optimized to enhance potential properties of the concrete, including workability, strength, permeability, and resistance to drying shrinkage and cracking and volume change from wetting and drying. The volume of paste should adequately fill the voids and provide sufficient separation between the aggregate particles to promote workability and effective bonding of particles.

Table 701.30-8: Paste Content

Mix Design Characteristic	Recommendation
Volume of Cement Concrete (cf)[1]	27
Paste Content (%)[2]	≤ 28[3]
Paste Content to Aggregate Void Content Ratio[4]	1.25 – 1.75
Excess Volume of Paste for Workability (%)[5]	–

[1] The volume of cement concrete is determined by the following equation, where W = Weight (lbs.), SG = Specific Gravity, D = Density (pcf), and V = Volume (cf).

$V_{CEMENT} = W_{CEMENT} / SG_{CEMENT} * D_{WATER}$
$V_{SCM} = W_{SCM} / SG_{SCM} * D_{WATER}$
$V_{ADMIXTURE} = V_{ADMIXTURE}$ in oz. / 957.5 oz. per cf
$V_{WATER} = V_{WATER}$ in gal. / 7.48 gal. per cf
$V_{COARSE} = W_{COARSE} / SG_{COARSE} * D_{WATER}$
$V_{FINE} = W_{FINE} / SG_{FINE} * D_{WATER}$
$V_{CONCRETE} = V_{CEMENT} + V_{SCM} + V_{ADMIXTURE} + V_{WATER} + V_{COARSE} + V_{FINE} + V_{AIR}$

[2] The paste content by volume of cement concrete is determined by the following equation, where V = Volume (cf) and PC = Paste Content (%).

$V_{PASTE} = V_{CEMENT} + V_{SCM} + V_{ADMIXTURE} + V_{WATER}$
$PC_{CONCRETE} = V_{PASTE} / V_{CONCRETE}$

[3] The cracking tendency of structural concrete is significantly reduced when the paste content by volume is less than or equal to 28 percent.

[4] The paste content to aggregate void content ratio is determined by the following equation, where D = Density (pcf), SG = Specific Gravity, BD = Bulk Density (pcf), VC = Void Content (%), V = Volume (cf), AVC = Aggregate Void Content (%), PC = Paste Content (%), and R = Ratio. Workability increases as the paste content to aggregate void content ratio increases. Decreased paste content to aggregate void content ratios will result in decreased workability, where water-reducing admixtures provide no benefit.

$VC_{COARSE} = SG_{COARSE} * D_{WATER} – BD_{COARSE} / D_{COARSE}$
$VC_{FINE} = SG_{FINE} * D_{WATER} – BD_{FINE} / D_{FINE}$
$VC_{AGGREGATE} = [(V_{COARSE} / (V_{COARSE} + V_{FINE})) * VC_{COARSE} + (V_{FINE} / (V_{COARSE} + V_{FINE})) * VC_{FINE}]$
$AVC_{CONCRETE} = [VC_{AGGREGATE} * ((V_{COARSE} + V_{FINE}) / V_{CONCRETE})]$
$R_{PC\text{-}AVC} = PC_{CONCRETE} / AVC_{CONCRETE}$

[5] The excess paste content for workability is determined by the following equation, where PC = Paste Content (%), AC = Air Content (%), AVC = Aggregate Void Content (%), and EPC = Excess Paste Content for Workability (%).

$EPC_{CONCRETE} = PC_{CONCRETE} + AC_{CONCRETE} – AVC_{CONCRETE}$

L. Initial Curing Materials.

The materials and procedures used for initial curing methods of cement concrete shall meet the Manufacturer's instructions and recommendations and the requirements specified herein. Cement concrete with a low to negligible bleeding rate, exposure to highly evaporative environments, high content of silica fume, fine cement, or other fine cementitious material, low water to cementitious ratio, high air content, or water-reducing admixtures have an increased susceptibility to surface drying and plastic shrinkage between placement and finishing operations. Initial curing materials and procedures shall be applied immediately after the bleed water sheen has disappeared from the surface of the concrete or the concrete surface exhibits loss of moisture and surface drying, between placement and finishing operations. Initial curing materials shall not be worked into the surface in subsequent finishing operations.

M. Liquid-Applied Evaporation Reducers.

Liquid-applied evaporation reducers used for initial curing methods shall produce an effective monomolecular film over the bleed water layer, to reduce the rate of evaporation of the bleed water from the surface and plastic shrinkage when the evaporation rate equals or exceeds the bleeding rate.

N. Intermediate Curing Materials.

The materials and procedures used for intermediate curing methods of cement concrete shall meet the Manufacturer's instructions and recommendations and the requirements specified herein. In instances where finishing operations have been completed prior to the concrete achieving final set and the concrete surface exhibits loss of moisture and surface drying, the following curing materials and procedures shall be applied immediately to the concrete surface prior to the application of final curing materials, to prevent the loss of moisture without damaging the concrete surface, until final set of the concrete has been achieved and final curing materials have been applied to the concrete surface.

- 701.30.C.1: Liquid-Applied Evaporation Reducers
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing
- 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing

O. Final Curing Materials.

The materials and procedures used for final curing methods of cement concrete shall meet the Manufacturer's instructions and recommendations and the requirements specified herein. Curing water shall be free of deleterious impurities, causing staining and deterioration. The potential staining ability of curing water shall be evaluated by means of CRD-C401 (US Army Corps of Engineers 1975) for instances where curing water quality is questioned. Curing water shall not exceed a temperature differential of more than 20°F from the internal concrete temperature, to prevent cracking due to temperature gradients causing strain that exceeds the strain capacity of concrete. Curing water shall remain above freezing temperatures throughout the duration of the curing cycle. Final curing materials and procedures shall be applied to the concrete surface immediately after application of initial and intermediate curing materials, finishing operations, and final set of cement concrete, to prevent the loss of moisture and surface drying. Materials used for final curing methods of cement concrete shall accommodate all exposed cement concrete surfaces with a continuous application of moisture throughout the entire duration of the final curing method cycle and provide controlled and gradual termination of the final curing method cycle. Final curing materials applied to the concrete shall allow the concrete to mature sufficiently to achieve its designed and desired properties, including strength, volume stability, permeability, durability, and resistance to freezing, thawing, and de-icing cycles. Insufficient application of final curing materials results in decreased strength and durability of the top surface of concrete. Protection to the concrete surface and curing materials shall be required in instances where adverse weather conditions are present, until curing operations can be initiated without damaging the surface of the concrete. Final curing materials and procedures shall be applied to the concrete surface throughout the entire duration of the curing cycle and meet minimum sustained temperature, duration, and strength requirements, as specified in applicable Division II: Construction Details and herein. Controlled and gradual termination of the final curing method cycle shall begin only after all specified conditions are met, until the concrete gradually cools to within 20°F of the ambient temperature.

P. Saturated Covers.

Saturated covers used for final curing methods shall meet AASHTO M 182, Class 3. Saturated covers shall be in good condition, free from holes, tears, or other defects that would render it unsuitable for curing cement concrete and cementitious materials. Saturated covers shall be dried to prevent mildew when storing. Prior to application, saturated covers shall be thoroughly rinsed in water and free of harmful substances that are deleterious or cause discoloration to cement concrete and cementitious materials. Saturated covers shall have sufficient thickness and proper positioning onto the surface to maximize moisture retention. Saturated covers shall contain a sufficient amount of moisture to prevent moisture loss from the surface of cement concrete and cementitious materials. Saturated covers shall have the ability to retain sufficient moisture from

continuous watering so that a film of water remains on the surface of cement concrete and cementitious materials throughout the entire duration of the final curing method cycle. Saturated covers shall not absorb water from cement concrete and cementitious materials. Polyethylene film may be applied over the saturated cover to limit the amount of continuous watering required for sufficient moisture retainage. Saturated covers shall accommodate uniform and slow drying of cement concrete and cementitious materials surfaces immediately prior to removal.

Q. Sheet Materials.

Sheet materials, including polyethylene film, white burlap-polyethylene sheeting, and reinforced paper, used for final curing methods shall meet ASTM C171 and the requirements specified herein. Sheet materials shall inhibit moisture loss and reduce temperature rise in concrete exposed to radiation from the sun during the final curing method cycle. Adjoining covers shall overlap not less than 12 inches. All edges of the sheet materials shall be secured to maintain a moist environment.

a. Polyethylene Film.

Polyethylene film shall be clear, white, or black in color and consist of a single sheet manufactured from polyethylene resins, be free of visible defects, including tears, wrinkles, and discontinuity. The film shall prohibit mottling and uneven spots from appearing on the surface of concrete, due to variations in temperature, moisture content, or both. Application of additional curing water under the film or application of a polyethylene film bonded to absorbent fabric to the concrete surface may be required to prevent mottling and to retain and evenly distribute the moisture. Polyethylene film shall accommodate concrete surfaces with constant contact without damage. The film shall be sufficient in length to extend beyond the edges of the concrete surface. Edges of adjacent polyethylene film shall overlap a minimum of 6 inches and be tightly sealed with the use of sand, wood planks, pressure-sensitive tape, mastic, or glue to maintain close contact with the concrete surface, retain moisture, and prevent the formation of air pockets throughout the entire duration of the final curing method cycle.

i. White Polyethylene Film.

White polyethylene film shall minimize heat gain caused by absorption of solar radiation and shall be exclusively used during warm weather applications.

ii. Clear and Black Polyethylene Films.

Clear and black polyethylene films shall inhibit absorption of solar radiation for cold weather applications.

b. White Burlap-Polyethylene Sheeting.

White burlap-polyethylene sheeting shall be securely bonded to the burlap so to avoid separation of the materials during handling and curing of the concrete.

c. Reinforced Impervious Paper.

Reinforced impervious paper shall be white in color, consist of two sheets of kraft paper cemented together with a bituminous adhesive, and reinforced with embedded cords or strands of fiber running in both directions. Reinforced impervious paper shall be free of holes, tears, and pin holes from deterioration of the paper through repeated use. Reinforced impervious paper shall be treated to prevent tearing when wetted and dried. Reuse of reinforced impervious paper shall be permitted so long as it is able to retain moisture on the surface of concrete. The paper shall be discarded and prohibited from use when moisture is no longer retained in the material.

R. Liquid Membrane-Forming Compounds.

Compounds shall form a continuous, non-yellowing, and durable film with quality moisture-retention properties. Compounds shall maintain the relative humidity of the concrete surface above 80% for seven

days to sustain cement hydration. Compounds shall not affect the original color of the concrete surface. Compounds shall not degrade due to exposure to ultraviolet light from direct sunlight. Compounds shall meet the local and federal allowable Volatile Organic Compound (VOC) content limits. White-pigmented compounds shall be used in instances where solar-heat gain is concern to the concrete surface. White-pigmented compounds shall be agitated in the container prior to application to prevent pigment from settling out resulting in non-uniform overage and ineffective curing.

Careful considerations shall be made by the Contractor to determine if the evaporation rate is exceeding the rate of bleeding, thus causing the surface to appear dry even though bleeding is still occurring. To diagnose and prevent this condition, the Contractor may place a transparent plastic sheet over a test area of the uncured and unfinished concrete surface and shall determine if any bleed water accumulates under the plastic. Under such conditions, the application of liquid membrane-forming compounds to the concrete surface shall be delayed to prevent bleed water from being sealed below the concrete surface, map cracking of the membrane films, reduction in moisture-retention capability, and the need for reapplication of the compound.

Prior to use, compounds shall be thoroughly mixed, stirred, and agitated per the Manufacturer's instructions and recommendations. Compounds shall be applied continuously and uniformly to the surface of the concrete per the Manufacturer's instructions and recommendations. Compounds shall be applied immediately after the disappearance of the surface water sheen following final finishing. Applicating of the compound immediately after final finishing and before all free water on the surface has evaporated will help prevent the formation of cracks. When using compounds to reduce moisture loss from formed surfaces, the exposed surface shall be wetted immediately after form removal and kept moist until the curing compound is applied. The concrete shall be allowed to reach a uniformly damp appearance with no free water on the surface, and then application of the compound shall begin at once. Delayed application will result in surface drying, absorption of the compound into the concrete, and no forming of a continuous membrane.

The concrete surface shall be damp when the compound is applied. Power-driven spray equipment shall be used for uniform application of compounds on large paving projects. Spray nozzles recommended by the compound Manufacturer and use of windshields shall be arranged by the Contractor to prevent wind-blown loss of compound and to ensure proper coverage application rates are achieved. The compound shall be applied by power sprayer, using appropriate wands and nozzles with pressures between 25 and 100 psi. The Contractor shall fill the power sprayer with curing compound from the Manufacturer's original container in the presence of the Engineer. Any dilution as recommended by the Manufacturer shall take place in the presence of the Engineer. For very small areas such as repairs, the compound shall be applied with a wide, soft-bristled brush or paint roller.

The Contractor shall verify the application rate and procedures are in accordance with the Manufacturer's instructions and recommendations. At least one uniform coat shall be applied at a rate of 150 to 200 ft2/gallon. On very deeply textured surfaces, the surface area to be treated shall be at least twice the surface area of the surface. In such cases, two separate applications may be needed, each at 200 ft2/gallon or greater if specified by the Manufacturer to achieve the desired moisture retention rate, with the first being allowed to become tacky before the second is applied. If two coats are necessary to ensure complete coverage, for effective protection the second coat should be applied at right angles to the first. Complete coverage of the surface shall be attained due to the potential for formation of small pinholes in the membrane, which will result in loss of moisture from the concrete. Compounds shall not sag, run off peaks, or collect in grooves.

Compounds and procedures shall be compatible with concrete surfaces receiving subsequent applications or placements of concrete, overlays, coatings, paints, sealers, finishes or other toppings to ensure acceptable bonding to the concrete. Testing to establish compatibility among the curing compound, subsequent surface treatments, concrete moisture content and the actual finished surface texture of the concrete shall be conducted when compatibility is not known. The compound Manufacturer shall be consulted by the

Contractor to determine the compatibility of the application. Compounds shall not be applied to concrete surfaces where bonding of subsequent applications or placements is incompatible or is of concern. The use of wax-based curing compounds shall be prohibited in instances where concrete surfaces are subject to additional toppings and vehicular, pedestrian, or other traffic. Deliberate removal of compounds in the presence of the Engineer and in accordance with Manufacturer's instructions and recommendations shall be conducted as an alternative to compatibility testing, incompatibility, or in instances where bonding is of concern. Bonding of subsequent materials may still be inhibited by the presence of the compound even after the moisture retention characteristics of the compound have diminished.

a. Liquid Membrane-Forming Compounds for Curing.

Liquid membrane-forming compounds for curing shall meet ASTM C309, the Manufacturer's instructions and recommendations, and the requirements specified herein.

Table 701.30-1: Types of Compounds for Curing

Type	Description
Type 1	Clear or translucent without dye
Type 1-D	Clear or translucent with fugitive dye
Type 2	White pigmented

Table 701.30-2: Composition Class of Compounds for Curing

Type	Description
Class A	Unrestricted composition, generally wax-based products
Class B	ASTM D883 resin-based products

b. Liquid Membrane-Forming Compounds for Curing and Sealing.

Liquid membrane-forming compounds for curing and sealing shall meet ASTM C 1315, the Manufacturer's instructions and recommendations, and the requirements specified herein. In addition to moisture-retention capabilities compounds shall exhibit specific properties, including alkali resistance, acid resistance, adhesion-promoting quality, and resistance to degradation by ultraviolet light.

Table 701.30-3: Types of Compounds for Curing and Sealing

Type	Description
Type I	Clear or translucent
Type II	White pigmented

Table 701.30-4: Class of Compounds for Curing and Sealing

Type	Description
Class A	Non-yellowing

S. Protective Sealing Compounds.

Protective sealing compounds shall maintain valid listing on the Department Qualified Construction Materials List (QCML) and meet AASHTO M 224, NCHRP Report 244 and the requirements specified herein. Protective sealing compounds shall sufficiently penetrate the concrete to seal the surface pores and fill the capillaries of the concrete by chemically reacting with the concrete and forming a hydrophobic layer.

Protective sealing compounds shall limit the penetration of liquids, gases, and harmful substances into hardened concrete, including water, de-icing agents, and carbon dioxide to protect concrete from freezing, thawing, and de-icing cycles, corrosion of reinforcing steel, and acid attack. Protective sealing compounds shall limit the buildup of vapor pressure between the concrete and the applied sealer. Protective sealing compounds shall retard the penetration of harmful substances into hardened concrete. Protective sealing compounds shall maintain their protective properties during environmental exposure to freezing, thawing, and de-icing cycles. Protective sealing compounds shall not reduce the frictional properties of the concrete. Protective sealing compounds shall not affect the original color of the concrete surface if maintaining the original color is desired by the Department. Protective sealers shall meet the local and federal allowable Volatile Organic Compound (VOC) content limits. Curing methods conforming to Department specifications shall be applied to the concrete prior to the application of protective sealers. Protective sealers shall not be applied to the concrete for a minimum of 28 days after placement and the surface shall be sufficiently prepared, clean, and dry for at least 24 hours with ambient temperatures exceeding 60°F. Protective sealers shall not be applied to concrete placed where freezing, thawing, and de-icing cycles are expected immediately after, due to the retainage of water in the concrete. Periodic re-application shall be required for protective penetrants requiring multiple applications and for concrete surfaces exhibiting wear to ensure long-term protection of the concrete surface.

T. Cold Weather Concreting Materials.

Cold weather concreting shall be defined as the procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, curing, and protection of concrete during cold weather conditions, while exposed to air temperatures falling below, or expected to fall below 40°F. The protection period shall be defined as the minimum duration required to prevent concrete from the negative effects of cold weather exposure. The protection period shall remain in place while cold weather conditions exist. Controlled and gradual termination of the protection period shall be conducted only after 100% f'c is attained and all specified conditions are met. The procedures, operations, materials, and equipment selected for cold weather concreting shall adequately maintain specified temperature ranges by addressing all variables, including ambient weather conditions, geometry of the structure, and mix design proportions. Concrete temperatures for cold weather concreting shall meet Table 701.30-5.

Table 701.30-5: Concrete Temperature Requirements for Cold Weather Concreting

Phase	Cold Weather Temperature (°F)	Concrete Temperature (°F)
Mixing	30-39	60-75
	0-30	65-80
	< 0	70-85
Placement	< 40	55-75
Protection Period	< 40	55-75
Termination of Protection Period – Allowable Rate of Decrease in 24 Hours	< 40	≤ 50

Cold weather concreting procedures, operations, materials, and equipment shall be developed and performed to prevent damage to concrete due to freezing at early ages, to ensure that the concrete develops the recommended strength for safe removal of forms, to maintain curing conditions that promote quality strength and durability development, to limit rapid temperature fluctuation, and to provide protection consistent with intended serviceability of the structure. The Contractor shall develop and submit to the

Department for review and approval, cold weather concreting procedures for the mixing, delivery, placement, finishing, curing, and protection of concrete during cold weather, including:

- Procedures for protecting the subgrade from frost and the accumulation of ice or snow on reinforcement or forms prior to placement
- Methods and requirements for cold weather protection and temperature control of constituent materials incorporated into the mix design
- Chemical admixtures incorporated into the mix design for cold weather protection and temperature control
- Methods and requirements for cold weather protection and temperature control during mixing, delivery, placement, finishing, curing, and protection period
- Curing methods to be used during and following the protection period
- Types of covering, insulation, heating, or enclosures to be provided
- Methods for verification of in-place strength
- Procedures for measuring and recording concrete temperatures
- Procedures for preventing drying during dry, windy conditions

All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production.

1. Insulating Materials.

Insulating materials used for cold weather concreting shall meet the requirements specified herein. The thermal resistance of the proposed insulation system shall be determined to meet the concrete temperature range requirements specified herein. Supplemental heat, including hydronic heating systems, shall be applied in instances where insulating materials cannot achieve the concrete temperature requirements.

2. Heaters.

Heaters used for cold weather concreting including direct fired, indirect fired, and hydronic heaters shall meet ANSI A10.10 carbon monoxide limits, safety regulations for ventilation, and the stability, operation, fueling, and maintenance of heaters and the requirements specified herein.

a. Direct Fired Heaters.

Direct fired heaters generate heat to an enclosed space through the combustion of fossil fuels, including oil, kerosene, propane, gasoline, and natural gas. Hot air comprised of carbon dioxide and carbon monoxide combustion products, is discharged into the enclosed space. Direct fired heaters shall be prohibited from heating the air directly surrounding the concrete surface due to calcium carbonate formation interfering with the hydration reaction, from the reaction between the carbon dioxide generated from the combustion of fossil fuels and the calcium hydroxide on the surface of freshly placed concrete, resulting in a soft, chalky, and nondurable concrete surface. Direct fired heaters shall only be used on concrete surfaces protected from fossil fuel combustion products.

b. Indirect Fired Heaters.

Indirect fired heaters generate heat to an enclosed space through the combustion of fossil fuels, including oil, kerosene, propane, gasoline, and natural gas. The carbon dioxide and carbon monoxide combustion products are expelled through venting, resulting in clean heated air discharged into the enclosed space. Indirect fired heaters are suitable for heating the air directly surrounding the concrete surface.

c. Hydronic Heaters.

Hydronic heaters generate heat to an enclosed space through the circulation of the heat-transfer fluid in a closed system of pipes or hoses. The heat-transfer fluid is comprised of a propylene glycol water solution and is heated through the combustion of fossil fuels, including diesel fuel and kerosene. The combustion of fossil fuel occurs outside of the enclosed space and does not expose the concrete surface to the deleterious

effects of carbon dioxide. After the concrete placement achieves final set, polyethylene film or other suitable material shall sufficiently serve as a vapor barrier. The heat-transfer hoses shall be placed on top of the vapor barrier and covered with insulating materials meeting 701.30.G.1. Hydronic heaters shall be used to thaw or preheat subgrades prior to concrete placement and provide supplementary heat to insulating materials. Hydronic heaters shall provide an even distribution of heat to prevent curling and cracking induced by temperature gradients within concrete.

3. Enclosures.

Enclosures shall be made of wood, canvas tarpaulins, polyethylene film, or prefabricated rigid plastic. Enclosures shall be airtight, block wind, prevent admittance of cold air, conserve heat, and withstand wind and snow loads. Enclosures shall provide adequate headroom for craftsmen and sufficient space between the concrete and the enclosure to permit free circulation of warm air. Supplementary heat shall be supplied to enclosures by hydronic heaters, live steam, hot forced air, or indirect fired combustion heaters. Icing along the perimeter of the enclosure shall be prevented when live steam is utilized. Heaters and ducts shall be positioned to prevent the hot, dry air from overheating or drying the concrete surface. Insulating materials meeting 701.30.G.1 shall be applied as a vapor barrier to the concrete surface immediate after final set is attained.

U. Hot Weather Concreting Materials.

Hot weather concreting shall be defined as the procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, bleed water evaporation, curing, and protection of concrete during hot weather conditions, while exposed to air temperatures exceeding, or expected to exceed 80°F; concrete temperatures approaching, or expected to approach 90°F; evaporation rates of surface water approaching, or expected to approach the bleeding rate of the concrete; high solar radiation; low relative humidity; and high wind speed.

The protection period shall be defined as the minimum duration required to prevent concrete from the negative effects of hot weather exposure, including the acceleration of rate of moisture loss and rate of cement hydration, difficulties in curing, increased concrete temperature, increased water demand, accelerated slump loss, increased rate of setting, increased tendency for plastic shrinkage and thermal cracking, increased potential for cold joints, and difficulties in controlling entrained air content. The protection period shall remain in place while hot weather conditions exist. Controlled and gradual termination of the protection period shall be conducted when conditions permit. The allowable rate of temperature decrease shall not exceed 5°F per hour and meet the allowable rate of temperature decrease specified in 701.30.G: Cold Weather Concreting Materials.

The procedures, operations, materials, and equipment selected for hot weather concreting shall adequately maintain specified temperature ranges and evaporation rates by addressing all variables, including ambient weather conditions, geometry of the structure, and mix design proportions. Initial materials meeting 701.30.C: Initial Curing Materials shall be applied to the concrete surface while the concrete and air temperatures, relative humidity of the air, and the wind speed have the capacity to evaporate free water from the fresh concrete surface at a rate that is equal to or greater than bleeding rate of the concrete. The evaporation rate of surface water shall be determined by the following equation:

$$E = (T_c^{2.5} - r * T_a^{2.5})(1 + 0.4V) \times 10^{-6}$$

where E = evaporation rate of water-covered surface ($lb/ft^2/hr$), T_c = concrete temperature of the evaporating surface (°F), r = relative humidity of air surrounding the evaporating surface (%), T_a = temperature of the air surrounding the evaporative surface (°F), and V = average wind speed 20 inches above the evaporating surface.

The air surrounding the evaporating surface shall be defined as the air approximately 4 to 6 feet above

the evaporating surface on the windward side and shielded from the sun's rays. Hot weather concreting procedures, operations, materials, and equipment shall be developed and performed to prevent damage to concrete and promote long-term durability. The Contractor shall develop and submit to the Department for review and approval, hot weather concreting procedures for the mixing, delivery, placement, finishing, curing, and protection of concrete during hot weather, including:

- Procedures for preparing the subgrade prior to placement
- Methods and requirements for hot weather protection and temperature control of constituent materials incorporated into the mix design
- Chemical admixtures incorporated into the mix design for hot weather protection and temperature control
- Methods and requirements for hot weather protection and temperature control during mixing, delivery, placement, finishing, curing, and protection period
- Initial curing methods to be used to reduce surface evaporation
- Curing methods to be used during and following the protection period
- Types of covering, insulation, cooling, or enclosures to be provided
- Evaporation rate and bleeding rate of concrete calculations
- Procedures for measuring and recording concrete temperatures
- Procedures for preventing drying during dry, windy conditions

All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production.

CONSTRUCTION METHODS

701.40: Pre-Placement

A. Excavation.

Excavation of the area shall be in accordance with the applicable portions of Subsection 120: Excavation.

B. Subgrade and Subbase.

The subgrade for the sidewalks and driveways shall be shaped parallel to the proposed surface of the sidewalks and driveways and thoroughly compacted. All depressions in the subgrade shall be filled with suitable material and again compacted until the surface is smooth and hard. Prior to the placement of the subbase, the Contractor shall inspect the prepared subgrade to ensure that it is in conformance with the required grade and cross-section. Subgrade shall be fine graded to meet the applicable requirements of Subsection 170: Grading.

After the subgrade has been prepared, a gravel subbase shall be placed upon it. After being compacted thoroughly, the subbase shall be at least 8 inches thick and parallel to the proposed surface of the sidewalk. Prior to the placement of the cement concrete, the Contractor shall inspect the prepared subbase material to ensure that it is in conformance with the required grade and cross-section. Subbase material that is not in accordance with the plans or specifications shall be reworked or replaced to meet the applicable requirements of Subsection 170: Grading before the start of cement concrete placement. When placing cement concrete, the compacted subbase shall not be frozen or have standing water.

Forms

Side forms and transverse forms shall be smooth, free from warp, of sufficient strength to resist springing out of shape, of a depth to conform to the thickness of the proposed sidewalk or pedestrian curb ramp and of a type satisfactory to the Engineer.

All mortar or dirt from previously used forms shall be completely removed prior to use. The forms shall

be well staked and thoroughly graded and set to the established lines with their upper edge conforming to the grade of the finished sidewalk or pedestrian curb ramp which shall have sufficient pitch to the roadside edge to provide for surface drainage.

All pedestrian curb ramp joints and transition sections which define grade changes shall be formed staked and checked for dimension, grade and slope conformance prior to placing cement concrete. All forms shall be oiled before placing concrete.

701.41: Placement

The concrete shall be placed in alternate slabs 30 ft long except as otherwise ordered. The slabs shall be separated by transverse preformed expansion joint filler ½ in. thick.

Preformed expansion joint filler shall be placed adjacent to or around existing structures as directed.

Detectable warning panels conforming to the plans shall be securely incorporated into the work by means acceptable to the Engineer. When a plan is not available detectable warning panels shall be installed at all ramps or as otherwise directed by the engineer. Detectable warning panels shall be brick red unless otherwise indicated in the standard details.

All concrete shall be fiber reinforced. Placement of cement concrete shall be completed no later than 2 P.M. on each day of operation to ensure proper set-up time before the end of the work day. The Town of Lexington Engineering Division does not allow pouring of cement concrete sidewalks between November 1 and March 31. All sections prone to pedestrian and/or vehicular movement shall be protected, as necessary, until proper curing has occurred. All vandalized sections shall be replaced at contractor's expense.

On the foundation as specified above, the concrete shall be placed in such quantity that after being thoroughly consolidated in place it shall be 4 in. deep. At driveways and curb ramps, the sidewalks shall be 6 in. deep.

In conveying the concrete from the place of mixing to the place of deposit, the operation shall be conducted in such a manner that no mortar will be lost, and the concrete shall be so handled that the concrete will be of uniform composition throughout, showing neither excess nor lack of mortar in any one place. The surface of all concrete sidewalks shall be uniformly scored into block units of areas not more than 36 ft². The depth of the scoring shall be at least ½ in. deep and no more than ½ in. wide.

701.42: Initial Curing

In instances where the bleed water sheen has disappeared from the surface of the concrete or the concrete surface exhibits loss of moisture and surface drying between placement and finishing operations, the Contractor shall apply one of the following initial curing materials and procedures meeting 701.30.C: Initial Curing Materials until finishing operations occur.

- 701.30.C.1: Liquid-Applied Evaporation Reducers

Initial curing materials shall not be worked into the surface in subsequent finishing operations.

701.43: Finishing

The finishing of concrete surface shall be done by experienced and competent cement finishers. No finishing operation shall be performed while free water is present. Finishing operations shall be delayed until all bleed water and water sheen has left the surface and the concrete has started to stiffen. After water sheen has disappeared, edging operations, where required, shall be completed. After edging and joining operations, the surface shall be floated. Magnesium floats shall be used for all finishing operations. If necessary tooled joints and edges shall be rerun before and after floating to maintain uniformity. After

floating, the surface shall be brushed by drawing a soft-bristled push broom with a long handle over the surface of the concrete to produce a nonslip surface.

701.44: Intermediate Curing

In instances where finishing operations have been completed prior to the concrete achieving final set and the concrete surface exhibits loss of moisture and surface drying, the Contractor shall apply one of the following intermediate curing materials and procedures meeting 701.30.D: Intermediate Curing Materials immediately to the concrete surface prior to the application of final curing materials, to prevent the loss of moisture without damaging the concrete surface, until final set of the concrete has been achieved and final curing materials have been applied to the concrete surface.

- 701.30.C.1: Liquid-Applied Evaporation Reducers
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing
- 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing

701.45: Final Curing

The Contractor shall apply one of the following final curing materials and procedures meeting 701.30.E: Final Curing Materials to the concrete surface immediately after application of initial and intermediate curing materials, finishing operations, and final set of cement concrete, to prevent the loss of moisture and surface drying.

- 701.30.E.1: Saturated Covers
- 701.30.E.2: Sheet Materials
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing
- 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing

The Contractor shall apply final curing materials and procedures to the concrete surface throughout the entire duration of the curing cycle and meet minimum sustained temperature, duration, and strength requirements, as specified in in Table 701.45-1. Controlled and gradual termination of the curing cycle shall begin after all specified conditions are met.

Table 701.45-1: Termination of Curing Cycle

Sustained Concrete Temperature	Final Curing Cycle Duration	Compressive Strength[1]
50°F ≤ °F ≤ 90°F	≥ Seven (7) days	≥ 70% f'_c

[1] Compressive strength cylinders for termination of curing cycle shall be cast and field cured with the same environmental conditions that the sidewalk is subjected to throughout the entire duration of the final curing cycle, per 701.73: Acceptance Sampling and Testing.

701.46: Protective Sealing

The Contractor shall apply sealing materials and procedures meeting 701.30.F: Protective Sealing Compounds only if one or more of the following final curing materials and procedures were applied:

- 701.30.E.1: Saturated Covers
- 701.30.E.2: Sheet Materials
- 701.30.E.3.a: Liquid Membrane-Forming Compounds for Curing

Protective sealing compounds shall not be applied to concrete surfaces applied with a final curing material and procedure meeting 701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing.

701.47: Cold Weather Concreting

The Contractor shall conduct cold weather concreting procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, curing, and protection of concrete, while surfaces are exposed to air temperatures falling below, or expected to fall below 40°F in accordance with 701.30.G: Cold Weather Concreting Materials. All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production.

701.48: Hot Weather Concreting

The Contractor shall conduct hot weather concreting procedures, operations, materials, and equipment required for the mixing, delivery, placement, finishing, curing, and protection of concrete, while surfaces are exposed to air temperatures exceeding, or expected to exceed 80°F; concrete temperatures approaching, or expected to approach 90°F; evaporation rates of surface water approaching, or expected to approach the bleeding rate of the concrete; high solar radiation; low relative humidity; and high wind speed in accordance with 701.30.H: Hot Weather Concreting Materials. All procedures, operations, materials, and equipment required for adequate protection and curing shall be present and ready for use prior to concrete production

CONTRACTOR QUALITY CONTROL

701.60: General

The Contractor shall provide adequate Quality Control (QC) to ensure that all materials and workmanship conform with the specification requirements. The Contractor shall perform QC activities as outlined further below.

701.61: Contractor Quality Control Plan

The Contractor shall provide and maintain a Quality Control Plan (QC Plan). The QC Plan should sufficiently document the QC processes of all Contractor parties (i.e. Prime Contractor, Subcontractors, Producers) performing work required under this specification.

701.62: Production Personnel

A. Foreman.

A foreman shall be present throughout the entire duration of the construction operation with at least one of the following personnel certifications.

- **NRMCA Concrete Exterior Finisher Certification**
- **ACI Concrete Flatwork Technician and Flatwork Finisher**

The foreman is responsible for the oversight of the construction operation per the requirements specified in Table 701.62-1.

Table 701.62-1: Minimum Foreman Activities

Operation	Foreman	Activity
Oversight	One (1)	Review and compare batch ticket quantities and sources to approved mix design
		Monitors conformance to AASHTO M 157 Standard Specification for Ready-Mixed Concrete
		Monitors conformance to Department specifications
		Monitors Production Personnel activities
		Verifies proper equipment is on hand prior to start of construction
		Monitors equipment, environmental conditions, materials, and workmanship
		Prohibits the use of prohibited equipment and practices
		Acknowledges sampling, testing, and inspection results

B. Operators.

Concrete sidewalk shall be constructed by sufficiently staffed, trained, experienced, and qualified equipment operators and craftsmen, who are presently involved in sidewalk construction, throughout the entire duration of the construction operation, per the requirements specified in Table 701.62-2.

Table 701.62-2: Minimum Operator Activities

Operation	Operators[1]	Activity
701.40: Pre-placement	Two (2)	Apply sufficient base compaction
		Moisten sub-base, free of standing water
		Secure forms, straight and level
		Mark expansion locations
		Prohibited Practices: Placement on frozen sub-grade
701.41: Placement (Concrete Discharging)	Two (2)	Direct concrete trucks
		Handle chute discharge and truck movement
		Assist in preparing concrete for testing
		Direct trucks to washout area
		Provide general help
		Prohibited Practices: Adding constituent materials not in conformance with AASHTO M 157 or without Department Consent
701.41: Placement	Two (2)	Localize placement to minimize moving material
		Level concrete in front of the screed
		Operate come-alongs or flat headed shovel to move concrete in form
		Consolidate concrete along form edge to avoid honeycombing
		Operate screed over top of forms in sawing action for surface leveling
		Operate magnesium bull float to push coarse aggregate below the surface and fill in the low spots or depressions
		Prohibited Practices: Toothed raking, dragging of internal vibrator, and internal vibrator to move concrete; steel troweling or floating
701.42: Initial Curling	Apply an initial curling material and procedure per 701.42	
	One (1)	701.30.C.1: Liquid-Applied Evaporation Reducers
701.43: Finishing	Two (2)	Permit bleed water to dissipate and concrete to set
		Operate a hose drag or squeegee to remove water from the surface
		Check surface for flatness, fill/cut as necessary
		Finish surface with magnesium float
		Apply pulled broom finish at proper time to acceptable texture
		Clean broom when excessive mortar adheres
		Remove excess water from broom before use
		Finish edges and joints
		Finish well formed, properly spaced joints to sufficient depth
		Prohibited Practices: Steel troweling or floating; adding water to the surface; excessive working of surface; pushing broom across surface

[1] Recommended number of operators

Table 701.62-2: Minimum Operator Activities (Continued)

Operation	Operators[1]	Activity
701.44: Intermediate Curing	If applicable, apply an intermediate curing material and procedure per 701.44	
	One (1)	701.30.C.1: Liquid-Applied Evaporation Reducers
	One (1)	701.30.E.3.a: Liquid Membrane-Forming Compounds
	One (1)	701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing
701.45: Final Curing	Apply a final curing material and procedure meeting 701.45	
	Four (4)	701.30.E.1: Saturated Covers
	Four (4)	701.30.E.2: Sheet Materials
	One (1)	701.30.E.3.a: Liquid Membrane-Forming Compounds
	One (1)	701.30.E.3.b: Liquid Membrane-Forming Compounds for Curing and Sealing
701.46: Protective Sealing	One (1)	If applicable, apply a protective sealing material and procedure per 701.46
701.47: Cold Weather Concreting	Four (4)	If applicable, apply cold weather concreting materials and procedures per 701.47 and the Department approved Contractor cold weather concreting plan
701.48: Hot Weather Concreting	Four (4)	If applicable, apply hot weather concreting materials and procedures per 701.48 and the Department approved Contractor hot weather concreting plan

[1] Recommended number of operators.

701.63: Quality Control Inspection

Quality Control inspection shall be performed and reported on inspection report forms by qualified Quality Control Technicians, to confirm conformance to specifications and to visually inspect equipment, environmental conditions, materials, and workmanship. Quality Control Technicians shall obtain at least one of the following personnel certifications.

- **NRMCA Concrete Exterior Finisher Certification**
- **ACI Concrete Flatwork Technician and Flatwork Finisher**

Quality Control inspection report forms shall be completed by the Contractor and submitted to the Department for review.

DEPARTMENT ACCEPTANCE

701.70: General

Acceptance shall be performed by the Department, including consultants under direct contract with the Department independent of the Contractor, to evaluate the degree of compliance with contract requirements, to monitor each Contractor entity's Quality Control activities, to determine the corresponding value for a given product, and to determine the acceptability of all material produced and placed.

701.71: Acceptance of Contractor Quality Control Plan

The Department will review the Contractor Quality Control Plan. Department approval shall be subject to conformance with the requirements specified herein.

701.72: Acceptance Inspection

Acceptance inspection will be performed and reported by qualified Department (or designee) Acceptance Technicians, to confirm conformance to specifications and to visually inspect equipment, environmental conditions, materials, and workmanship.

701.73: Acceptance Sampling and Testing

Acceptance sampling and testing will be performed and reported by qualified Department (or designee) Acceptance Technicians, to provide quality characteristic data used for Department Acceptance determination, per the requirements specified herein.

Table 701.73-1: Minimum Acceptance Sampling and Testing Requirements

Property	Method	Quality Characteristic	Sublot Size	Minimum Test Frequency	Point of Sampling	Criteria
Uniformity	T 119	Slump Allowable Tolerance (in.)[1]	100 cy	1 per Sublot	Point of Discharge	Target ± 1.5
Workability	T 119	Segregation Resistance[2]	100 cy	1 per Sublot	Point of Discharge	Pass
Thermal	T 309	Concrete Temperature (°F)	100 cy	1 per Sublot	Point of Discharge	50 – 90
Strength	T 22	Compressive Strength at 7 Days for Curing Termination (psi)[3]	100 cy	1 per Sublot	Point of Discharge	≥ 70% f'_c
		Compressive Strength at 28 Days (psi)[3]	100 cy	1 per Sublot	Point of Discharge	≥ 100% f'_c
		Compressive Strength at 56 Days (psi)[3][4]	100 cy	1 per Sublot	Point of Discharge	≥ 100% f'_c
Durability	T 121 T 152 T 196	Freezing and Thawing Resistance: Air Content (%)	100 cy	1 per Sublot	Point of Discharge	5.5 – 8.5
	T 303 or C1567	Alkali Silica Reaction Resistance: Expansion at 14 Days (%)	–	1 per Annual Mix Design Submission Cycle	–	≤ 0.08

[1] Test result and the Producer's mix design target shall be within the specified allowable tolerances. Slump shall be reported on the Producer's mix design batch ticket for each delivery.
[2] Testing for segregation resistance shall be performed while the concrete is being discharged and during AASHTO T 119 Standard Method of Test for Slump of Hydraulic Cement Concrete. Visual signs of segregation include coarse particles advancing in front of or behind the fine particles and mortar and a tendency for coarse aggregate to separate from the mortar, particularly when the mixture is being consolidated.
[3] Three (3) 4 x 8 in. compressive strength cylinders shall be cast and tested for each age per sublot.
[4] Testing only required if compressive strength results at 28 days do not conform with specifications.

COMPENSATION

701.80: Method of Measurement

Cement Concrete Sidewalks, Pedestrian Curb Ramps, and Driveways will be measured in square yards. Excavation will be measured by the cubic yard as specified in 120.80: Method of Measurement. Gravel Borrow will be measured by the cubic yard as specified in 150.80: Method of Measurement. Fine grading and compacting will be measured by the square yard as specified in 170.88: Method of

Measurement.

Sawcutting shall be incidental to the items for cement concrete sidewalks.

Fiber reinforcement shall be incidental to all cement concrete items.

701.81: Basis of Payment

Cement Concrete Sidewalk, Cement Concrete Pedestrian Curb Ramp, and Cement Concrete Driveway will be paid for at the contract unit price per square yard complete in place, including detectable warning panels and all incidental materials, labor, and equipment necessary to complete the work to the satisfaction of the Engineer.

Gravel will be paid for at the contract unit price per cubic yard under Item 151: Gravel Borrow. Fine grading and compacting will be paid for at the contract unit price per square yard under Item 170: Fine Grading and Compacting – Subgrade Areas.

Excavation will be paid for at the contract unit price per cubic yard under the excavation items. Fiber reinforcement shall be incidental to all cement concrete items. Sawcutting shall be incidental to the items for cement concrete sidewalks.

701.82: Payment Items
Insert the following new subsection in numerical order:

ITEM 701	Cement Concrete Sidewalk	SQUARE YARD
ITEM 701.1	Cement Concrete Sidewalk Driveways	SQUARE YARD
ITEM 701.2	Cement Concrete Pedestrian Curb Ramp	SQUARE YARD

SUBSECTION 702
HOT MIX ASPHALT SIDEWALKS AND DRIVEWAYS

CONSTRUCTION METHODS

702.42 CONSTRUCTION OF HOT MIX ASPHALT SIDEWALKS AND DRIVEWAYS
E. Hot Mix Asphalt Placement.

Replace (b) with the following:

For sidewalks, the compacted lift thickness for intermediate course shall be 2.00 in. and the surface course shall be 1.25in.

COMPENSATION

702.81 BASIS OF PAYMENT
Emphasis shall be added to the last sentence:

All required sawcutting in the existing pavement in accordance with this specification will be included in the contract unit price for Hot Mix Asphalt Sidewalks and Driveways.

Add the following the end of this subsection:

Price adjustments for hot mix asphalt (all asphalt items under section 701) will be made in accordance with Document 00811 published by MassDOT revised July 8, 2016. Asphalt adjustment shall be documented on each invoice with no adjustment shown on invoice one. Invoice two will include the adjusted asphalt cost from the invoice one tonnage and so on. The contractor shall provide documentation and calculations demonstrating the proper adjustment. The base bid for liquid asphalt on this contract shall be the period price at the date of the bid opening as published by MassDOT on its website.

Insert the following new subsection in numerical order:

SUBSECTION 706
MISCELLANEOUS WALK TREATMENT

DESCRIPTION

706.20 GENERAL

The work under this item shall conform to the relevant provisions of Section 700 of the Standard Specifications and the following:

The work consists of reusing existing or supplying and installing new various sidewalk treatments as shown on the plans or required by the Engineer. Work includes new/used pavers to provide transitions from walkways and driveways to new cement concrete walk, removing and relaying of existing brick or field stone walks similar to the existing conditions and in close conformity with existing lines and grades.

Samples, Submittals and Field Mock-Up

The Contractor shall reuse the existing bricks, pavers, field stone or other materials or provide new similar materials as required and specified in the standard specifications, these special provisions or as indicated on the Drawings. The Contractor shall provide material descriptions, certified test results and manufacturer's product information for any new materials as required by the Engineer.

The Contractor shall submit at representative sample to the Engineer to indicate each shape, size and color to be supplied. The Contractor shall submit the manufacturers' product data for Polymeric Sand.

Quality Assurance

Maintain quality control of all batching, coloring, and forming of all units, supplemental unit parts, and in the delivery of said units.

All manufacturers shall have a minimum of five (5) years in producing brick pavers.

All pavers shall conform to standards defined by ASTM: American Society for Testing and Materials with relation to requirements of materials and their performance standards.

Units shall be free of cracks, chips, scratches and any other defect at the time of delivery. All units shall be placed in a storage area, protected from damage prior to and during transit to the Owner's or Contractor's site.

Edging Material shall meet minimum requirements based on the Stork Method.

MATERIALS

706.40 GENERAL

Brick Walk Pavers

Brick pavers will match in size, color and quality to the existing brick pavers used in each respective walkway. New pavers will have a thickness of 2 inches and be set as shown on the plans or as required by the Engineer.

Brick Driveway Pavers

Brick driveway pavers will match in size, color and quality of the existing brick pavers used in each respective driveway. New pavers will comply with ASTM c1272-11 type R & F Specifications for Heavy Vehicular Paving Brick 2-3/4" thickness and shall be set as shown on the plans or as required by the Engineer.

CONSTRUCTION METHODS

706.60 GENERAL

Delivery, Handling and Storage

Deliver pavers to the site in steel banded, plastic banded, or plastic wrapped cubes capable of transfer by forklift or clamp lift, with manufacturer's name and product brand. Store all materials in dry locations, protected from weather, stored off the ground, and secured on-site.

Polymeric sand shall be covered with a waterproof covering to prevent exposure to rainfall or removal by wind. The covering shall be secured in place.

Installation

The Joint Sand, also called polymeric sand and bedding sand shall be furnished and placed under requirements of Section 706, of the Standard Specifications, as shown on the plans or required by the Engineer.

Dense graded crushed stone shall be furnished and placed under the requirements of Section 402, of the Standard Specifications, as shown on the plans or as required by the Engineer.

The setting bed for the walkway pavers shall be masonry sand over a base of dense graded crushed stone over gravel borrow. Spread the sand setting bed evenly over the base and screed to thickness noted on the Drawings.

The setting bed for the driveway pavers shall be neoprene modified asphalt adhesive over a base of cement concrete, air entrained, 4000 psi, ¾ inch, 610 lbs/cu.yd. over gravel borrow.

Gravel borrow base shall be furnished and placed under requirements of Section 151, gravel base course of the Standard Specifications, and the sections and elevations shown on the Drawings.

Lay the pavers in the pattern(s) to match the existing walkway and/or driveway or as required by the Engineer. Maintain straight and uniform pattern lines.

New paver areas shall be hand placed paving units set with maximum 1/8 inch joints. Mechanically vibrate pavers to uniform and true level to finish grade.

Reset or new pavers used to rebuild existing walkways and/or driveways shall be set with joint width matching existing joint width of walkway and/or driveway being retained.

Polymeric sand shall only be added to joints when pavers are completely dry. All sand shall be swept from paver surface before the joint sand is watered in to avoid sand cementing to the paver surface. After initial joint sand application is watered in and pavers are completely dry, a second application of sand shall be swept into the joints to fill any remaining voids. After all sand has been removed from the paver surface the joints shall be watered thoroughly. This process shall be repeated until all joints are filled. Clean all paver surfaces as needed until the polymeric sand is completely removed from the brick surface.

Pavers shall have a deviation of 3/8" or less over a 10' length measured with a metal straight edge.

Cut pavers shall be no less than half a brick. Pavers shall be cut with a masonry saw and have a clean edge. Pavers that get chipped or do not have a clean edge will either be recut or replaced with a new paver.

The complete paver surface shall be swept clean and washed down with water to provide a finished installation according to manufacturers' recommendations. Any stains that occur during construction shall be removed prior to acceptance at no cost to the Owner.

Any damaged paving units found prior to project acceptance shall be removed. The paver replacement units shall match in color with adjacent units, at no additional cost to the Owner.

<u>If installing edging before bedding sand and pavers:</u>

Place edging on compacted base. Edging shall not be installed on top of the bedding layer. Spike rigid style edging using predrilled holes, with a maximum spacing of 24" between spikes. Spike placement may be placed through the back if needed. Installing flexible style edging with a maximum spacing between spikes of 12". Connect additional sections of edging as needed.

<u>If installing edging after bedding sand & pavers:</u>

Use a trowel or flat head shovel to cut down along the back of the paver, and pull away the excess bedding sand without disturbing the base material. Connect sections together. Place edging directly on the compacted base material. Slide the retention lip under the bedding layer. Edging shall not be installed on top of the bedding layer. Spike into place following the same spike placement specifications as noted above. Nail the spike at an angle with the point driven inward toward the pavement (toe-nailing) to keep edging tight to the pavement.

COMPENSATION

706.80 METHOD OF MEASUREMENT

Miscellaneous Walk Treatment will be measured for payment by the square yard, complete in place.

706.81 BASIS OF PAYMENT

Miscellaneous Walk Treatment will be paid at the Contract unit price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for excavation, gravel borrow, fine grading and compacting, geotechnical fabric, dense graded crushed stone, setting bed sand, concrete, and polymeric joint sand, but all costs in connection therewith shall be included in the unit bid price for Item 706.7 Miscellaneous Walk Treatment.

Where new brick walk, existing brick walk or field stone is removed and reset over an area where there is no sidewalk or driveway currently, reclaimed base may be used or, if none is available, gravel borrow will be provided and paid for under item 151 Gravel Borrow.

706.82 PAYMENT ITEMS

ITEM 706.7	Miscellaneous walk treatment	SQUARE YARD

SUBSECTION 751
LOAM BORROW, PLANTABLE SOIL BORROW, PROCESSED PLANTING MATERIAL OR TOPSOIL RE-HANDLED AND SPREAD

CONSTRUCTION METHODS

751.61 PLANTABLE SOIL BORROW
Add the following at the end of this subsection:

Plantable Soil Borrow shall be placed at a compacted depth of no less than 4 inches.

COMPENSATION

751.80 METHOD OF MEASUREMENT
Replace the first sentence of this subsection with the following:

The quantity of Plantable Soil Borrow shall be measured in place after compaction to the limits specified on the plans, or as directed by the Engineer. When quantities of Plantable Soil Borrow are given in tons, a factor of 1.40 tons per cubic yard will be used to convert the measurement to cubic yards.

SUBSECTION 850
TRAFFIC/SAFETY CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS

DESCRIPTION

850.20 GENERAL
Add the following at the end of this subsection:

Work of this section shall also include Traffic Police Details and Fire Details as required for protection of the traveling public and working personnel during construction operations.

850.21 SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS.
Add the following at the end of this subsection:

Safety Controls for Construction Operations consists of furnishing. positioning. repositioning, maintaining and removing, as needed and/or as directed: traffic cones, high level warning devices. delineators, floodlights. Type I and II barricades, portable flashing and steady burning lights, hand signal devices, lanterns. and pilot cars

850.22 TRAFFIC CONES FOR TRAFFIC MANAGEMENT
Replace this subsection with the following:

Traffic Cones for Traffic Management consists of furnishing, positioning, repositioning, maintaining, and removing as needed and/or as directed: reflectorized drums, traffic cones, high level warning devices, delineators, floodlights, Type I and II barricades, portable flashing and steady burning lights, hand signal

devices, lanterns and pilot cars for the purpose of closing a lane, shifting traffic, or otherwise redirecting traffic.

850.23 SAFETY SIGNING FOR TRAFFIC MANAGEMENT
Add the following at the end of this subsection:

Safety Signage for Traffic Management shall include, at a minimum, the following signs, mounted permanently on their own posts throughout the duration of the project, at locations to be determined by the Engineer:

QUANTITY	*DESIGNATION*	*SIZE*	*SIGN WORDING*
6	W20-1	48" x 48"	ROAD WORK AHEAD
4	W8-3	30" x 30"	PAVEMENT ENDS
6	W8-1	30" x 30"	BUMP
2	G20-2A	36" x 18"	END ROAD WORK

Safety Signage for Construction Operations may also include, but is not limited to, the following signs, mounted temporarily on their own posts or stands, as directed by the Engineer, as required for detour work:

QUANTITY	*DESIGNATION*	*SIZE*	*SIGN WORDING*
4	M4-9L	30" x 24"	← DETOUR
4	M4-9R	30" x 24"	DETOUR →
2	M4-9U	30" x 24"	DETOUR ↑
4	R11-2	48" x 30"	ROAD CLOSED

The Contractor shall furnish, erect, remove, cover, relocate, and replace if necessary, all signs as directed by the Engineer. All signs shall be removed when no longer required.

Add this new subsection:
850.38 TRAFFIC POLICE DETAILS AND FIRE DETAILS

This work consists of scheduling Traffic Police Details when construction operations involve work which is of a nature where the use of a Traffic Police Detail would be required to increase safety of the general public and construction personnel.

This work also consists of scheduling Fire Details when construction operations involve blasting work. A Fire Detail will be required at all times explosives are present on site.

Scheduling of Details shall be made through the Contractor. The Contractor is responsible for canceling Details directly in the event of schedule changes where work no longer requires the use of Details, or cancellations of work for any reason, including weather.

MATERIALS

850.40 GENERAL
Add emphasis in paragraph one sentence one to the wording ***"must be in first class condition and acceptable to the engineer".***

COMPENSATION

850.80 METHOD OF MEASUREMENT
Add the following at the end of this subsection:

Traffic Police Details and Fire Details shall be paid actual man-hours, for which such services are rendered as required, as billed according to the Detail's union contract in effect at the time of work.

The Contractor shall be responsible for all payments of Traffic Police Details and Fire Details incurred when the Contractor is unable to cancel Details with a minimum of one hour notice, in the event of schedule changes where work no longer requires the use of Details, or cancellations of work for any reason, including weather. Such man-hours shall be billed directly to the Contractor, according to the Detail's union contract in effect at time of work, and shall be kept separate from man-hours to be reimbursed by the Owner, and in no case will such payments be reimbursed.

The allowance established in the Bid Form is for bidding purposes only. The actual invoiced rates and quantities may differ from these established rates.

850.81 BASIS OF PAYMENT

Add the following at the end of this subsection:

Lump sum payments will be made in equal amounts on each estimate based on the number of months estimated to complete the work.

Payment for Traffic Police Detail and Fire Detail shall be paid man-hours for services rendered as required, as measured in Subsection 850.80. Such man-hours shall be paid directly by the Contractor and reimbursed by the Town of Lexington for the amount billed and paid. Payment will not be made for man-hours the Contractor shall be responsible for, as stated in Subsection 850.80, METHOD OF MEASUREMENT. Evidence of payment of details by the contractor shall be provided to the town monthly to ensure payments are being made. Lack of payment or evidence may result in delays in processing invoices to the contractor or a work stoppage order to the contractor.

850.82 PAYMENT ITEMS

Add the following at the end of this subsection:

ITEM 851	Safety Controls for Construction Operations	LUMP SUM
ITEM 999.	Traffic Police Detail	MAN-HOUR
ITEM 999.5	Fire Detail	MAN-HOUR

SUBSECTION 860
REFLECTORIZED PAVEMENT MARKING

MATERIAL

Add the following to the beginning of this subsection

860.40: GENERAL

Work under these items cover white and yellow epoxy reflectorized pavement striping material that is sprayed onto the pavement. As work incidental to these items the Contractor shall furnish to the Department one portable spectrophotometer and one replacement calibration standard with the Department taking ownership of these pieces of equipment. The spectrophotometer shall be delivered to the Research and Materials headquarters at the beginning of line striping work. Following a surface application of glass beads and upon drying, the resultant marking is a reflectorized stripe of specified thickness and width, that is capable of resisting deformation by traffic. Work under these items shall conform to the relevant provisions of Section 860 of the Standard

A. REGULAR-DRY EPOXY SUGGESTED SUPPLIERS

Epoplex LS50	SUPPLIER/LOCATION Epoplex - Stonhard Inc Maple Shade, NJ
Hotline TM 8212 (Part A White) Hotline TM 8213 (part A Yellow) Hotline TM 8214 (Part B Hardener or Converter)	Baltimore Paint and Chemical Co. Division of Sherwin-Williams Baltimore, MD Edison, NJ
Lumiline, Lumiline II	Accent Stripe, Inc Orchard Park, NY
Poly-Carb Mark 55.3	Poly-Carb Inc. Solon, OH
Super Lifeline II, III	Linear Dynamics, Ball Ground, GA
Thermopoxy Series 100 Part A (Series 101 White) Part A (Series 102 Yellow) Part B (Series 103)	Technical Coatings Corp Alpharetta, GA

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B. Epoxy Material

1. Composition.

The epoxy resin composition shall be specifically formulated for use as a pavement marking material and for hot-spray application at elevated temperatures. The type and amounts of epoxy resins and curing agents shall be at the option of the manufacturer, providing the other composition and physical requirements of this specification are met.

The epoxy marking material shall be two-component (Part A and Part B), 100% solids type system formulated and designed to provide a simple volumetric mixing ratio (e.g. two volumes of Part A to one volume of Part B).

The epoxy marking material shall be supplied as either a regular-dry or a slow-dry material. Regular-dry may be used for all marking patterns. Slow-dry material is intended for marking hatchlines, edgelines, and other marking patterns located out of the general path of traffic.

All acceptances of uninstalled epoxy marking material shall expire six (6) months after the date of manufacture.

Part A of both white and yellow shall conform to the following requirements:

PERCENT BY WEIGHT OF PART A .

WHITE	Pigment - 18 Minimum, Titanium Dioxide (ASTM D476, Type II) Epoxy Resin - 75 to 82
YELLOW	Pigment - 18 Minimum, Titanium Dioxide (ASTM D476,Type II) 5 Minimum, Organic Yellow, Epoxy Resin – 73 to 77

The entire pigment composition shall consist of either titanium dioxide or titanium dioxide and organic yellow. No extender pigments are permitted. Yellow pigment shall be lead-free.

The epoxy content of the epoxy resin in Part A will be tested in accordance with ASTM D 1652 and calculated as the weight per epoxy equivalent (WPE) for both white and yellow. The epoxy content will be determined on a pigment free basis. The epoxy content (WPE) shall meet a target value provided by the manufacturer and approved by the Department. A ±50 tolerance will be applied to the target value to establish the to acceptance range.

The amine value of Part B shall be tested in accordance with ASTM D2074(2) to determine its total amine value. The total amine shall meet a target value provided by the manufacturer and approved by the Department. A ±50 tolerance will be applied to the target value to establish the acceptance range. The manufacturer may specify an alternate test method for determining the amine value subject to the approval of the Department.

2. Physical Properties of Mixed Components (Part A and Part B).

Unless otherwise noted, all samples are to be prepared tested at an ambient temperature of 73 ± 3°F.

a. Color.

Yellowness Index (ASTM D-1925).

- cure 72 hours after sample preparation
- Take yellow index reading, XYZ C/2°, following 72 hour cure and preceding QUV
- Maximum index before QUV: 8.0
- Place sample in QUV for 72 hours
- Maximum index after QUV: 20

Typical White Standard	Typical Yellow Standard
X7805	X52.7
Z90.4	Y48.1
Y14.7	Z7.6

b. Directional Reflectance.

The white epoxy composition (without glass spheres) shall have a daylight directional reflectance of not less than 84% relative to a magnesium oxide standard when tested in accordance with ASTM E1347.

The yellow epoxy composition (without glass spheres) shall have a daylight directional reflectance of not less than 55 % relative to a magnesium oxide standard when tested in accordance with ASTM E 1347.

c. Drying Time (Laboratory).

When tested in accordance with ASTM D711 as modified below, regular-dry epoxy marking material shall reach a no-pick-up time in 30 minutes or less. Under these same test conditions, slow-dry epoxy marking material shall reach a no-pick-up time in 60 minutes or less. A Bird Applicator or other suitable instrument shall be used to spread a nominal 15 ± 1 mil thick wet film. Reflective glass spheres shall be immediately dropped onto the epoxy film at a rate of 18 pounds per gallon.

d. Drying Time (Field).

When installed at 77°F at the specified wet film thickness and reflectorized with glass spheres, regular-dry and slow-dry epoxy markings shall reach a no-track condition in approximately 30 minutes, and 60 minutes, respectively.

Dry to "no-tracking" shall be considered as the condition where no visual deposition of the epoxy marking to the pavement surface is observed when viewed from a distance of 50 feet, after a passenger car is passed over the line.

e. Hardness.

The epoxy composition when tested in accordance with ASTM D2240 shall have a Shore D hardness of between 75 and 100. Samples shall be allowed to cure for not less than 72 hours nor more than 96 hours prior to testing.

f. Infrared Spectrophotometer Analysis (ASTM D2621).

Samples of Part A and Part B shall be analyzed by infrared spectrography. The spectrum of each component shall be a reasonable match to the spectrum of the original formulation accepted by the Department.

C. Reflective Glass Spheres.

Reflective glass spheres for drop-on application shall conform to the following requirements:

The glass spheres shall be colorless, clean, transparent, free from milkiness or excessive air bubbles, and essentially clean from surface scarring or scratching. They shall be spherical in shape and at least 80 % of the glass beads shall be true spheres when tested in accordance with ASTM is D-1155, Procedure A. The refractive index of the spheres shall be a minimum of 1.5 as determined by the liquid immersion method at 77°F.

DOUBLE DROP METHOD

TYPE I		TYPE II	
Sieve Opening Retained	% Retained	Sieve Opening Retained	% Retained
No. 10	0	No. 20	0 - 5
No. 12	0 - 5	No. 30	5 - 20
No. 14	5 - 20	No. 50	30 - 50
No. 16	40 - 80	No. 80	9 - 32
No. 18	10 - 40	No. 100	0 - 5
No. 20	0 - 5	Pan	0 - 2
Pan	0 - 2		

The silica content of the glass spheres shall not be less than 60 % .
The glass spheres shall have the following gradation when tested in accordance with ASTM D-1214.

The glass spheres, Type I, shall be coated with a silane-type adherence coating to enhance embedding in and adherence to the applied binder film. The coated beads shall emit a yellow-green fluorescence when tested by the Danayl Chloride test procedure. The Type II glass spheres shall be treated with a moisture-proof coating. The beads shall show no tendency to adsorb moisture in storage and shall remain free of clusters and lumps. The beads shall flow freely from the dispensing equipment at any time when surface and atmospheric

conditions are satisfactory for marking operations. The moisture-resistance of the glass spheres shall be determined on the basis of the following test:

Place one kilogram of spheres in a washed cotton bag having a thread count of approximately 52 per square inch (warp and woof) and immerse the bag in a container of water for 30 seconds. Remove the bag and force excess water from the sample by squeezing the bag. Suspend and allow to drain for two hours at room temperature (73 ± 2°F). Then mix the sample in the bag by shaking thoroughly. Pour the sample slowly into a clean, dry glass funnel having a stem 4 inches in length, with a 0.4 inch inside diameter stem entrance opening and a minimum exit opening of 0.25 inches. The entire sample shall flow freely through the funnel without stoppage. When first introduced into the funnel, if the spheres clog, it is permissible to lightly tap the funnel to initiate the flow.

Reflective glass spheres may be accepted at the job site on the basis of the manufacturer's certification, or they may be submitted to the Research and Materials Laboratory for testing.

D. Packaging and Shipment.

Epoxy pavement marking materials shall be shipped to the job site in strong, substantial containers. Individual containers shall be plainly marked with the following information:

1. Name of Product
2. Item Number
3. Lot Number
4. Batch Number
5. Test Number
6. Date of Manufacture
7. Date of Expiration of Acceptance (6 months from date of manufacture)
8. The Statement (as appropriate): "Part A - Contains Pigment and Epoxy Resin," or "Part B - Contains Catalyst"
9. Quantity
10. Mixing Proportions, Application Temperature and Instructions
11. Safety Information
12. Manufacturer's Name and Address

Reflective glass spheres shall be shipped in moisture resistant bags. Each bag shall be marked with the name and address of the manufacturer and the name and net weight of the material.

EQUIPMENT AND APPLICATION REQUIREMENTS

E. STRIPING EQUIPMENT

The equipment shall have a system capable of spraying the epoxy paint in the manufacturer's recommended proportions and be mounted on a truck of sufficient size and stability, and with an adequate power source to produce lines of uniform dimension and prevent application failure. It shall be capable of placing stripes on the left and right sides and of placing two intermittent lines simultaneously. It shall also be capable of applying glass beads at the rate of 25 pounds per gallon. All guns must be in full view of the operator at all times. The equipment shall be provided with a metering device to register the accumulated installed footage for each gun each day. Each vehicle shall include at least one operator who shall be a technical expert in equipment operations and epoxy application techniques.

Equipment shall have such a design that the pressure gauges for each proportioning pump are constantly visible to the operator at all times during its operation so that any fluctuation and pressure difference can be addressed immediately.

F. SURFACE PREPARATION

The pavement surface on which the epoxy paint material is placed shall be clean and dry. Existing traffic markings shall be removed by blasting or grinding. The curing compound on Portland cement concrete shall also be removed. Existing markings shall be removed so that at least 95% of the underlying pavement is visible. The abrasive material shall be removed from the pavement surface before the pavement is opened to uncontrolled traffic flow.

G. APPLICATION

1. Epoxy

The epoxy paint markings shall have a thickness of 25 mils ± 1 mil, calculated without drop-on glass beads. All markings shall have uniform thickness with a uniform distribution of` glass beads throughout the line width. The width of lines shall be as specified with a tolerance of 0.25 inches. Markings shall have sharp edges and cutoff at the ends.

2. Glass Beads

The glass beads shall be applied by the double drop method, which requires that Type I and Type II reflective glass spheres be injected into or dropped onto the liquid epoxy marking. Each type shall be applied simultaneously, at a minimum rate of 10 to 13 pounds per gallon of resin with a minimum total application of 25 pounds per gallon. Type I beads shall be applied first, immediately followed by Type II beads. The beads shall adhere to the cured epoxy or all marking operations shall cease until corrections are made.

3. Temperature Limitations

During marking operations, the pavement surface where the epoxy is to be placed shall have a minimum temperature of 40° F and the air temperature shall be at least 35° F. The pavement surface temperature ,and the air temperature shall be determined at the start of each day of marking operation and at any time deemed necessary by the Engineer. The spraying temperatures shall be in accordance with the manufacturer’s recommendations.

4. Application Rates

Application rates will be checked by the Engineer at convenient intervals by comparing tallies of materials used to the length of lines placed. For initial application and occasionally during the course of work, the Engineer may also check application to a pre-weighed sheet specifically placed for test purposes. Drop-on spheres shall not be applied in this test.

5. Protecting Newly installed Markings

Newly installed markings shall be protected from tracking during the setting period by one or more of the following methods:

1) Cone off wet lines from traffic
2) Use a convoy of moving vehicles to prevent traffic from crossing wet lines
3) Saturate lines with glass beads to prevent tracking.

PORTABLE SPECTROPHOTOMETER FOR MEASURING COLOR SPECIFICATION

Use

Perform objective color measurements of road signs, pavement markings, barricades, and other traffic safety devices for the purpose of acceptance, approval or maintenance.

Measurement Parameters

Geometry: The spectrophotometer shall have a measurement geometry of 45° circumferential (illumination) and 0° (observation).

Spectral Range: The instrument shall have a spectral range of 400 to 700 nm.

Spectral Interval: The instrument shall have a spectral interval output of 20 nm. The internal computation spectral interval shall be 5nm.

Photometric Range: The instrument shall have a photometric range of 0 to 100% with a resolution of 0.01.

Standards: The instrument shall conform to the following standards:
DIN 5033, 5036, 6174
ISO 7724
ASTM D2244, E308, E313, E1164 Calibration

Calibration Standards: The instrument shall be supplied with one durable white traceable calibration standard. The instrument shall also be supplied with one black and one green durable calibration standards.

CONSTRUCTION METHODS

Basic Construction: The instrument shall be rigidly constructed to maintain a fixed geometry and must not contain any foldable or collapsible parts.

Illumination: the instrument shall utilize an LED lamp system for sample illumination.

This lamp system shall consist of 30 individual LED's. There shall be 3 LED's per color oriented at 120 degrees from each other to provide accurate light control and a larger sample port size.

The illumination system shall not raise the temperature of the sample being measured either during a single measurement or during multiple, repeated measurements.

Dimensions: The instrument's physical dimensions shall be 3.75 inches wide, 3.5 inches tall and 7 inches long. The instrument shall weigh 32 ounces.

Power Source: The instrument shall be powered by four AA size alkaline, NiCd or MH batteries. The instrument shall be capable of taking at least 5000 measurements on one set of fully charged batteries.

Use and Control

Display: The instrument shall use a 2.4 x 1.2 inch liquid crystal display, 126 x 64 pixels.

Illuminants: The instrument shall be able to measure samples with type A, C, D65, F2, F7, and F11 illuminants.

Observers: The instrument shall be able to measure samples with 2° and 10° observer.

Display Modes: The instrument shall be capable of operating in several different modes including:

Absolute color data
Pass/Fail
Color difference
Metamerism

Spectral Curve Color Systems: The instrument shall be capable of measuring and displaying color data with different color systems including:

Yxy	**FMC2**
CIELab	**XYZ**
CEILCh/H	**RxRyRz**
Lab(h)	

Indices: The instrument shall be capable of measuring and displaying different color indices including:

YIE313	**Berger**
YID1925	**Color Strength**
WIE313	**Opacity**
CIE	**Metamerism MI**

Color Differences: The instrument shall be able to measure and display color differences including:

Delta E*	**Delta E_{94}**
Delta E(h)	**Delta $_{ECMC}$**
Delta $_{EFMC2}$	

Data Storage: The instrument shall utilize internal, memory for storing measurement data. The instrument shall be capable of storing approximately 1000 samples. In addition, the instrument shall be capable of storing approximately 200 standards. A 15-year lithium battery shall independently power the data memory.

Data Output: The instrument shall be equipped with a data port to allow for data output directly to a printer or Windows™ applications.

Equipment

The instrument shall be equipped complete with a users manual, batteries, carrying case, black calibration standard, white calibration standard, green calibration standard, sample area locator, PC interface cable with adapter, wrist strap, and a color theory guide.

One manufacturer of the above piece of equipment is BYK-Gardner Color Guide Portable Spectrophotometer Cat# 530160. The additional set of calibration standards may be obtained from Flint Trading, Inc., Thomasville, NC (Tel 336475-6600).

860.82 PAYMENT ITEMS

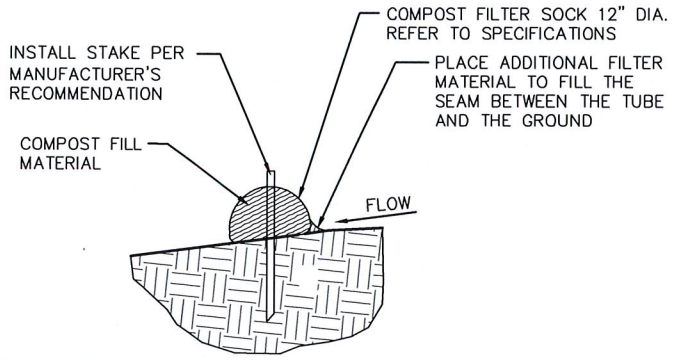
Insert the following in numerical order

ITEM 868.04	4” Reflectorized White Line (EPOXY)	LINEAR FEET
ITEM 868.12	12” Reflectorized White Line (EPOXY)	LINEAR FEET
ITEM 869.04	4” Reflectorized Yellow Line (EPOXY)	LINEAR FEET

END OF SPECIAL PROVISIONS

CONSTRUCTION DETAILS DRAWINGS

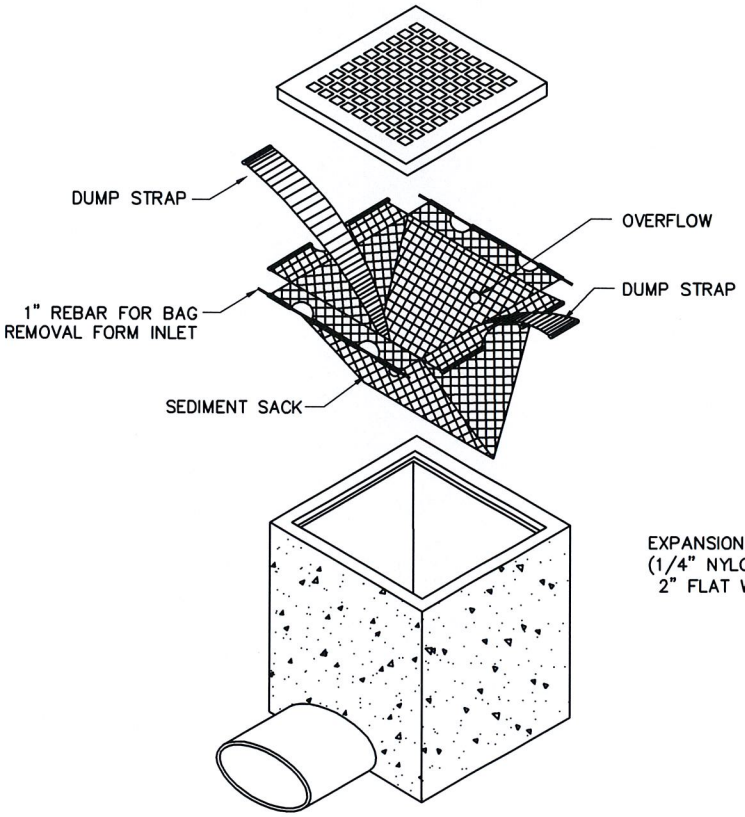
APPENDIX-2

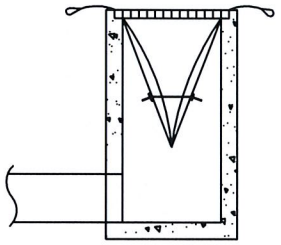


NOTE:
EROSION CONTROL DEVICES SHALL
BE INSTALLED IN ACCORDANCE
WITH ORDER OF CONDITIONS.

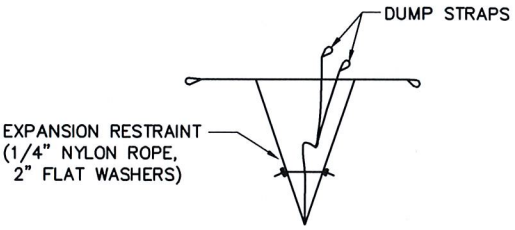
SEDIMENTATION BARRIER

N.T.S.





INSTALLATION DETAIL



BAG DETAIL

SEDIMENTATION BAG – SILTSACK

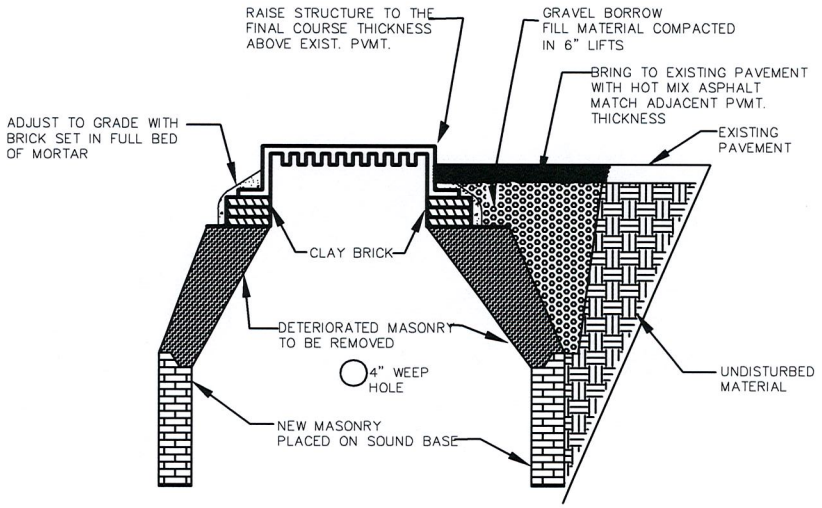
N.T.S.

Town of Lexington

ENGINEERING

DIVISION

DRAWN BY: MW	DATE: 3/20/17	SCALE: NONE


RAISE STRUCTURE TO THE FINAL COURSE THICKNESS ABOVE EXIST. PVMT.
GRAVEL BORROW FILL MATERIAL COMPACTED IN 6" LIFTS
BRING TO EXISTING PAVEMENT WITH HOT MIX ASPHALT MATCH ADJACENT PVMT. THICKNESS
EXISTING PAVEMENT
ADJUST TO GRADE WITH BRICK SET IN FULL BED OF MORTAR
CLAY BRICK
DETERIORATED MASONRY TO BE REMOVED
4" WEEP HOLE
UNDISTURBED MATERIAL
NEW MASONRY PLACED ON SOUND BASE

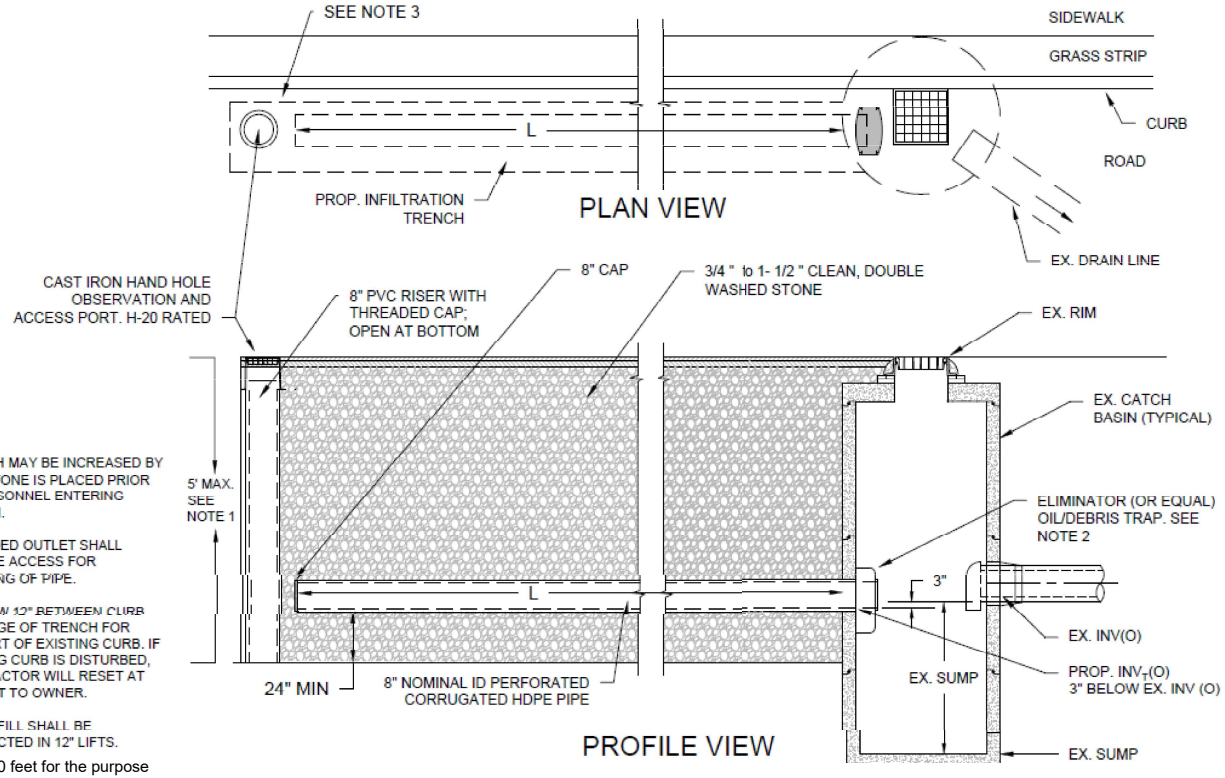
TYPICAL REBUILD OF DRAINAGE/SEWER STRUCTURE

Town of Lexington

ENGINEERING

DIVISION

DRAWN BY: MW	DATE: 2/21/2018	SCALE: NONE



NOTES:

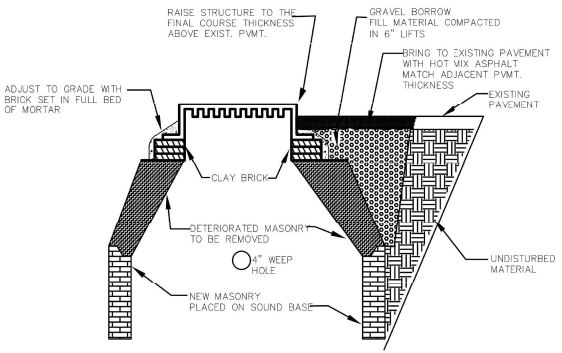
1. DEPTH MAY BE INCREASED BY 12" IF STONE IS PLACED PRIOR TO PERSONNEL ENTERING TRENCH.

2. HOODED OUTLET SHALL PROVIDE ACCESS FOR CLEANING OF PIPE.

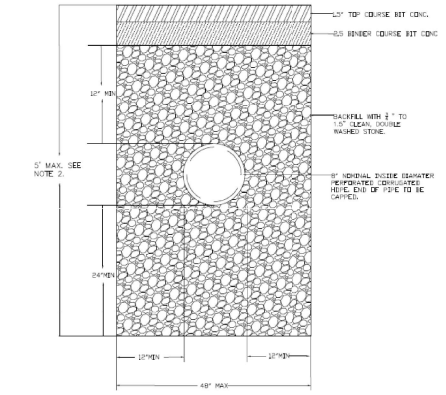
3. ALLOW 12" BETWEEN CURB AND EDGE OF TRENCH FOR SUPPORT OF EXISTING CURB. IF EXISTING CURB IS DISTURBED, CONTRACTOR WILL RESET AT NO COST TO OWNER.

4. BACKFILL SHALL BE COMPACTED IN 12" LIFTS.

5. L = 50 feet for the purpose of Measurement and Payment. Please refer to Item 285 for more detail


RAISE STRUCTURE TO THE FINAL COURSE THICKNESS ABOVE EXIST. PVMT.
GRAVEL BORROW FILL MATERIAL COMPACTED IN 6" LIFTS
BRING TO EXISTING PAVEMENT WITH HOT MIX ASPHALT MATCH ADJACENT PVMT. THICKNESS
EXISTING PAVEMENT
ADJUST TO GRADE WITH BRICK SET IN FULL BED OF MORTAR
CLAY BRICK
DETERIORATED MASONRY TO BE REMOVED
4" WEEP HOLE
UNDISTURBED MATERIAL
NEW MASONRY PLACED ON SOUND BASE

TYPICAL REBUILD OF DRAINAGE/SEWER STRUCTURE


1.5" TOP COURSE BIT CONC.
0.5 BINDER COURSE BIT CONC
12" MIN
BACKFILL WITH 3/4 " TO 1.5" CLEAN, DOUBLE WASHED STONE.
5' MAX. SEE NOTE 2.
8" NOMINAL INSIDE DIAMETER PERFORATED CORRUGATED HDPE. END OF PIPE TO BE CAPPED.
24"MIN
12"MIN
12"MIN
48" MAX

NOTES:

1. ALL BACKFILL SHALL BE COMPACTED IN 12 INCH LIFTS.
2. DEPTH MAY BE INCREASED BY 1 FOOT IF STONE IS PLACED PRIOR TO PERSONNEL ENTERING THE TRENCH.
3. MEASURES SHALL BE TAKEN TO PREVENT MIGRATION OF FINES INTO BACKFILL.
4. PIPE SPECS BASED OFF H0100EC PIPE MANUFACTURED BY LANE ENTERPRISES.

NOTES:

1. PLANS WERE DEVELOPED USING AVAILABLE AERIAL IMAGERY, EXISTING PLANS, AND ON-SITE OBSERVATIONS. A FORMAL SURVEY OF THE PROJECT AREAS WAS NOT CONDUCTED. UTILITY LOCATIONS AND INVERT MEASUREMENTS ARE APPROXIMATE.
2. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING DIG-SAFE AND ALL APPLICABLE UTILITIES OF THE PROPOSED WORK PRIOR TO ANY EXCAVATION. THE TOWN OF LEXINGTON IS NOT A MEMBER OF DIG-SAFE AND MUST BE NOTIFIED DIRECTLY AT LEAST 72 HOURS PRIOR TO EXCAVATION BY CALLING THE TOWN OF LEXINGTON OPERATIONS AT 781-274-8300.
3. TRENCHES HAVE BEEN PROPOSED IN LOCATIONS WHERE NO UTILITY CONFLICTS WERE APPARENT. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL APPLICABLE UTILITIES FOR APPROPRIATE MARK-OUTS AND CONFIRMING NO CONFLICTS ARE PRESENT. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER SHOULD ANY EXISTING UTILITY CONFLICTS BE IDENTIFIED WITHIN PROPOSED TRENCH LIMITS.
4. CONTRACTOR IS RESPONSIBLE FOR NOTIFYNG RESIDENTS AND ABUTTERS OF ANY WORK THAT MAY INTERFERE WITH DRIVEWAY AND WALKWAY ACCESS.
5. A RELATIVE LOCAL DATUM HAS BEEN SET FOR EACH TRENCH LOCATION. THE CATCHBASIN RIM ELEVATION HAS BEEN SET TO ZERO FEET (0.0') AT EACH LOCATION.
6. EXISTING ASPHALT SHOULD BE SAWCUT PRIOR TO EXCAVATION.
7. TRENCHES SHOULD BE BACKFILLED AND COMPACTED IN 12 INCH LIFTS.
8. CONTRACTOR IS RESPONSIBLE FOR APPROPRIATE CONSTRUCTION SIGNAGE AND BARRIERS AS NEEDED AND SHALL BE INCIDENTAL TO THE CONTRACT.
9. CONTRACTOR TO MAINTAIN CLEAN WORK ZONE AND SWEEP WORK SITE DAILY.
10. PAVING TO BE COMPLETED WEEKLY.
11. EROSION CONTROL SHALL BE USED WHEN NECESSARY AND CONSIDERED INCIDENTAL TO THE CONTRACT. ANY SEDIMENT THAT ENTERS THE TOWN'S STORMWATER SYSTEM AS A RESULT OF CONSTRUCTION SHALL BE REMOVED AT THE EXPENSE OF THE CONTRACTOR.
12. CONTRACTOR SHOULD TAKE CARE TO NOT IMPACT NEARBY TREES DURING CONSTRUCTION.
13. ANY AREA DISTURBED BY THE CONTRACTOR OUTSIDE OF THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL CONDITION AT NO COST TO THE OWNER.
14. DO NOT PARK, IMPEDE ACCESS TO, OR STORE EQUIPMENT BEYOND RIGHT OF WAY, UNLESS PERMISSION HAS BEEN GRANTED IN WRITING BY THE TOWN AND/OR LAND OWNER.

DATE	REVISION	BY
1/22/21	VIEWPORTS	ML
1/25/21	DESIGN TABLES	ML
1/26/21	TRENCH LENGTHS	ML

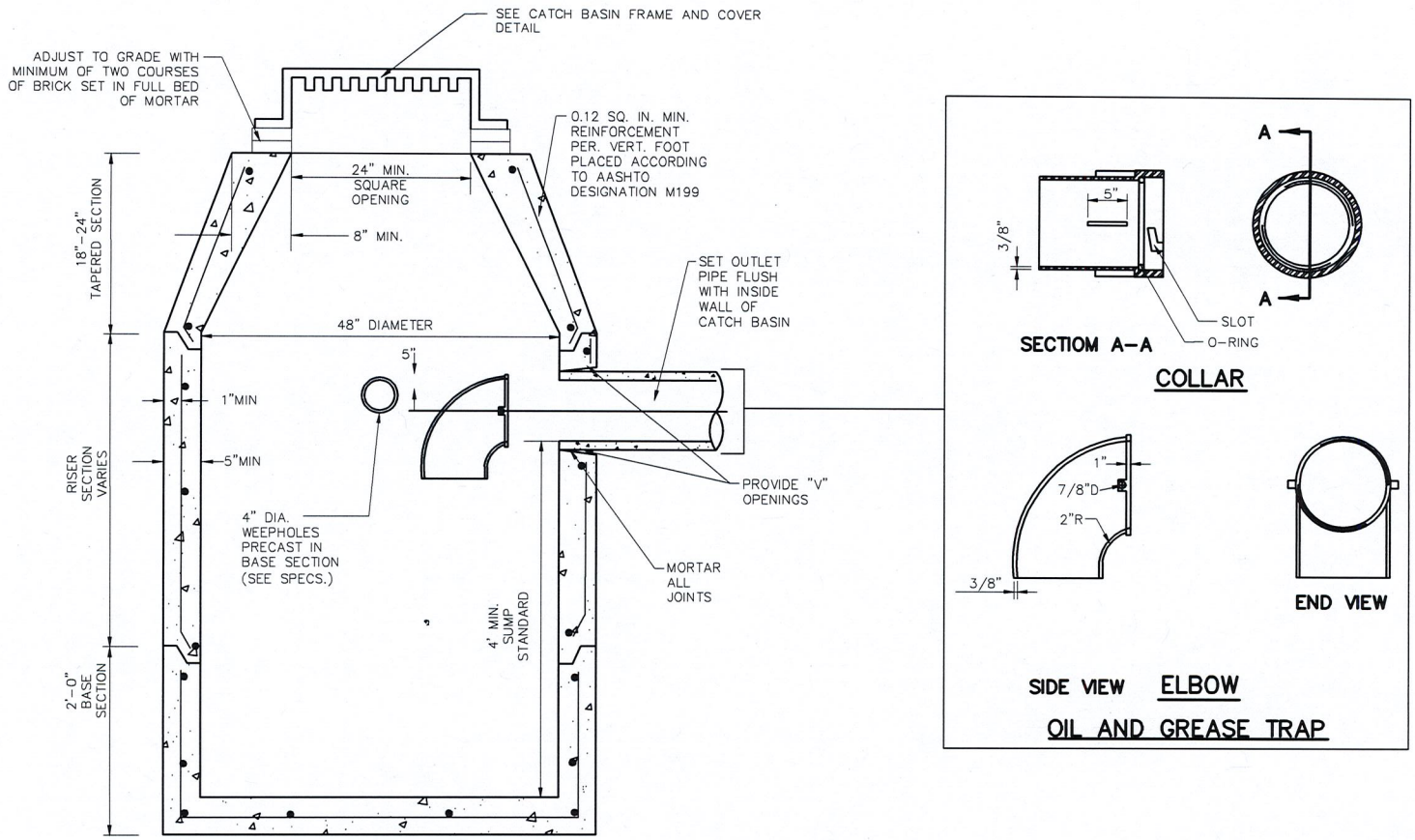
Town of Lexington
ENGINEERING DIVISION

STREET TRENCH DESIGNS AND LOCATIONS

DRAWN BY: ML | DATE: 1/20/21 | SCALE: N.T.S
DESIGNED BY: ML | CHECKED BY: MS
APPROVED BY:

SHEET 14

STREET TRENCH SHEET -AS-BUILTS.DWG Plotted on 14-Sep-2021 7:47 AM

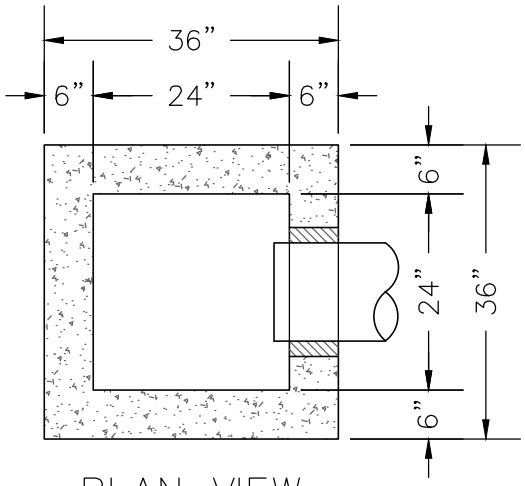


PRECAST CONCRETE CATCH BASIN

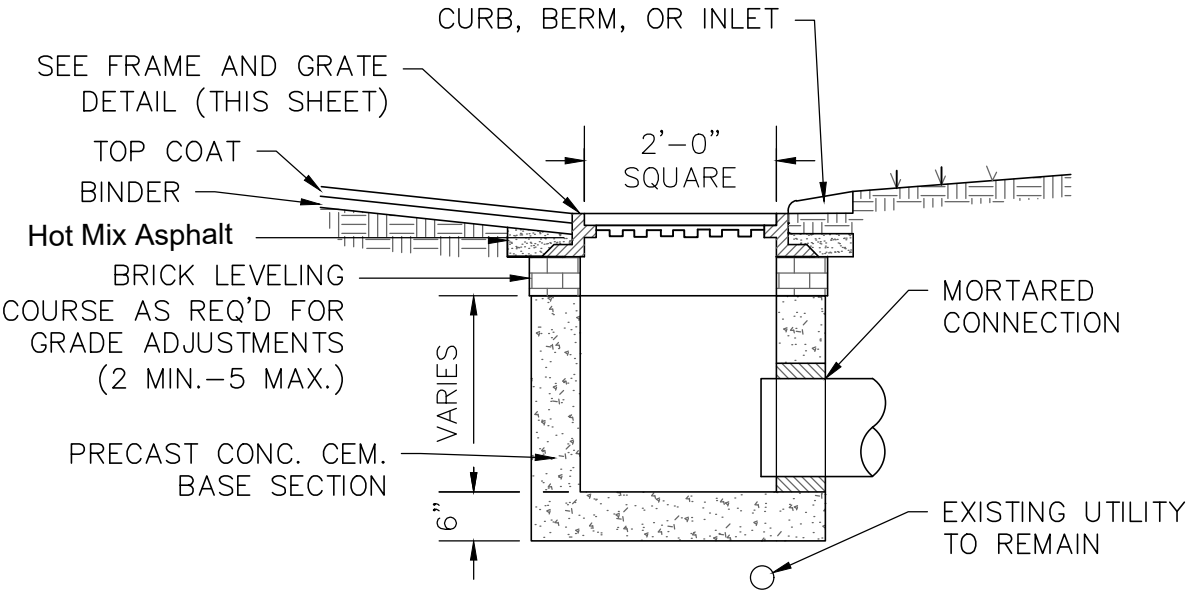
Town of Lexington

ENGINEERING DIVISION

DRAWN BY: MW	DATE: 2/21/2018	SCALE: NONE



PLAN VIEW

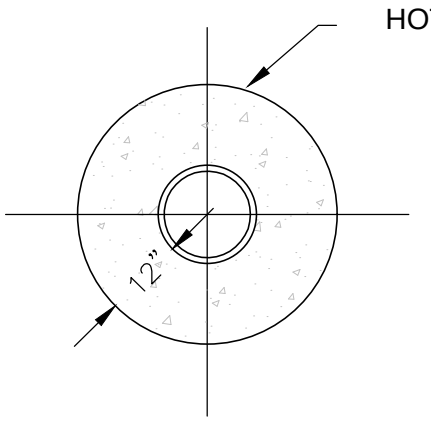


SECTION VIEW

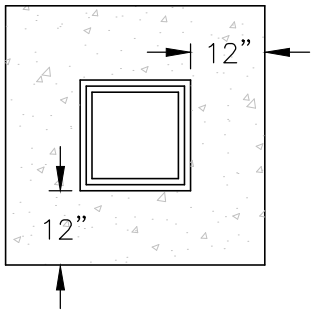
NOTES:

1. PRECAST REINFORCED CONCRETE GUTTER INLET TO BE CAPABLE OF SUPPORTING H–20 LOADING.
2. GUTTER INLET MUST OUTLET TO STRUCTURE WITH MIN. 4' SUMP

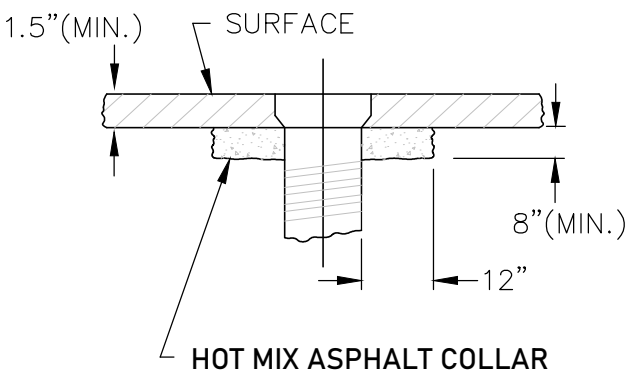
	TOWN OF LEXINGTON **ENGINEERING DIVISION**	**REVISED**
	GUTTER INLET	**JANUNARY 2024**



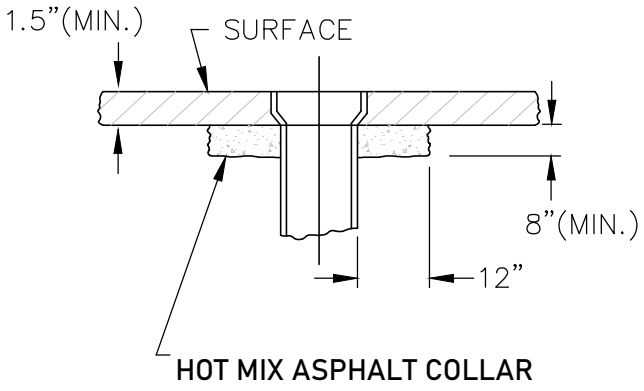
PLAN



PLAN



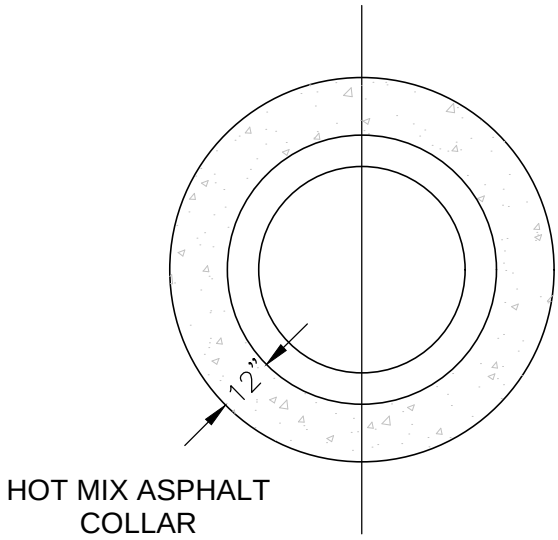
SECTION



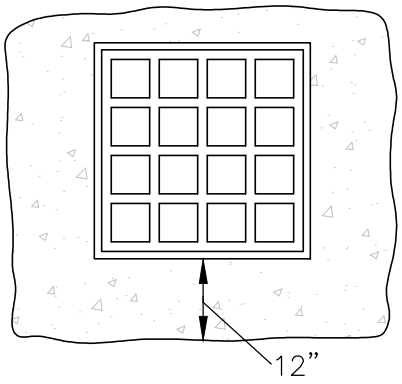
SECTION

DRAFT

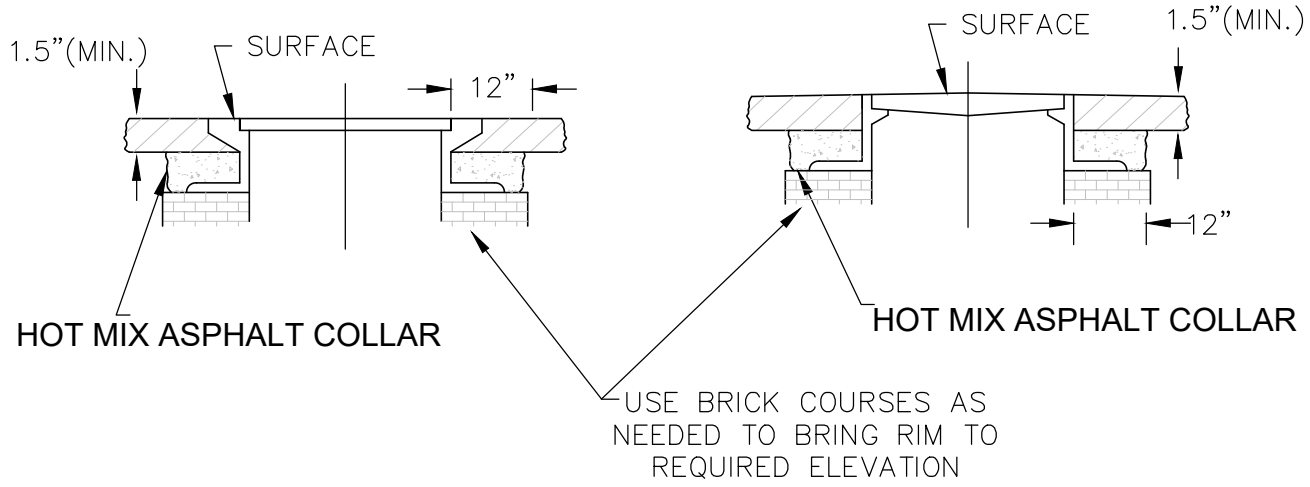
	ENGINEERING DIVISION		
	DESIGN AND CONSTRUCTION STANDARDS RAISING CASTINGS - WATER SERVICE BOXES		
	SCALE: NTS		DATE: 2023



PLAN



PLAN



SECTION

MANHOLES

SECTION

CATCH BASINS

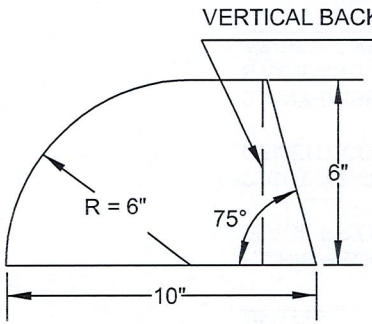
DRAFT

	ENGINEERING DIVISION		
	DESIGN AND CONSTRUCTION STANDARDS RAISING CASTINGS - DRAINAGE STRUCTURES		
	SCALE: NTS		DATE: 2023

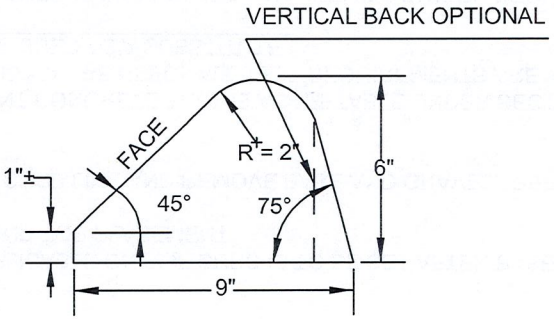
massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

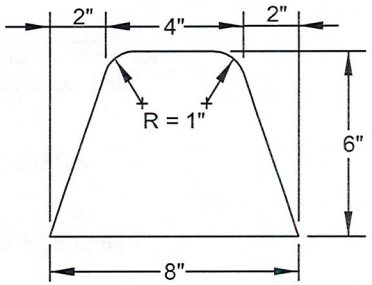
HOT MIX ASPHALT CURBS



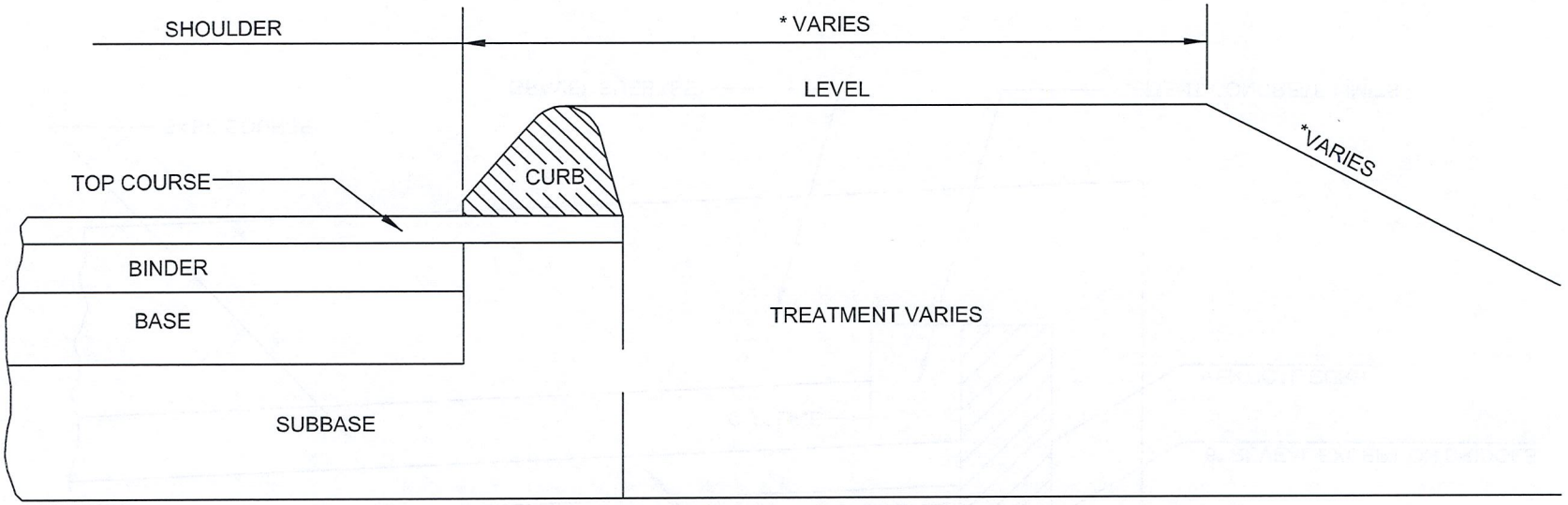
TYPE - 1



TYPE - 2



TYPE - 3

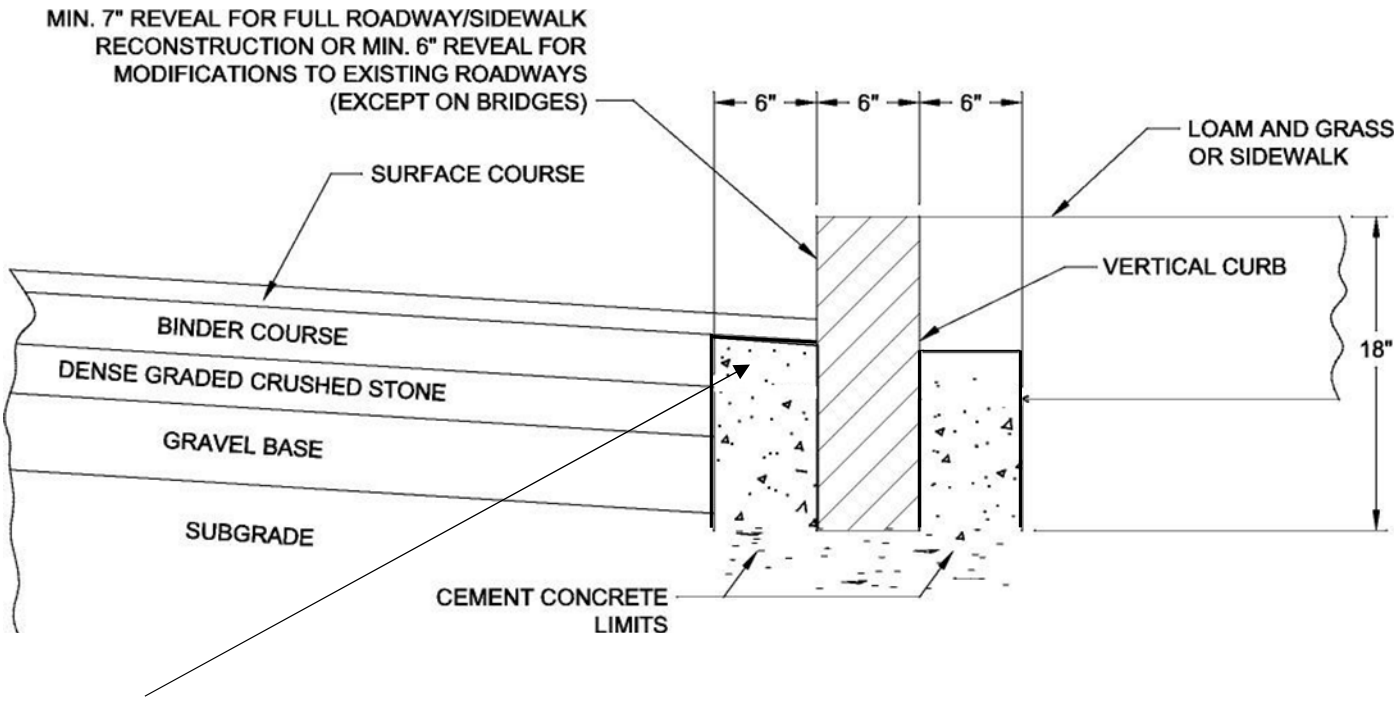


METHOD OF SETTING-TYPICAL FOR ALL TYPES

* SEE TYPICAL SECTIONS FOR PROJECT.

DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 106.2.0

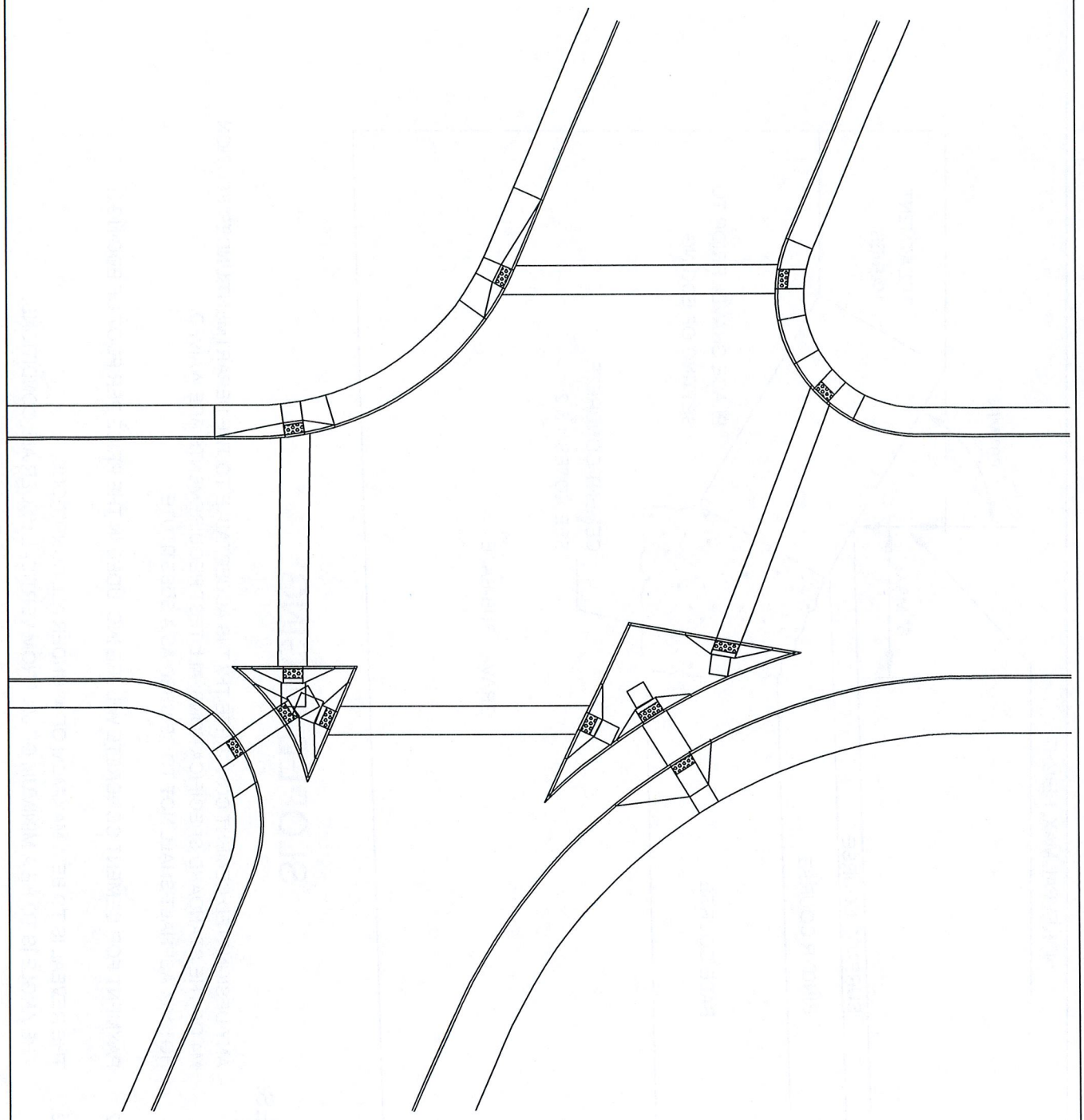


CONCRETE ON THE STREET SIDE TO EX. BINDER GRADE

NOTES:

1. **INSTALL BINDER, CUT NEAT 6" FROM LINE AND REMOVE BASE AND GRAVEL. REPLACE WITH CEMENT CONCRETE**
2. **ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER OF THE STANDARD MHD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE**
3. **CONCRETE NOT TO EXCEED BINDER GRADE**

	DEPARTMENT OF PUBLIC WORKS	**REVISED**
	VERTICAL GRANITE CURB DETAIL	**JANUARY 2024**



NOTES:

1. LEVEL LANDINGS CAN OVERLAP
2. ISLAND AREAS SUBJECT TO TRAVEL SHOULD BE TREATED AS PLAZAS "NOT MORE THAN 2% SLOPE IN ANY DIRECTION"
3. ALL RAMPS BY REGULATION MUST BE PERPENDICULAR TO THE CURB AT THE GUTTER
4. RAMPS SHOULD BE BOTH ALIGNED TOWARD THE RECEIVING RAMP AND WITHIN THE GENERALLY PREFERRED PEDESTRIAN PHASE OF TRAFFIC

massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

TYPICAL INTERSECTION CROSS WALK LAYOUT

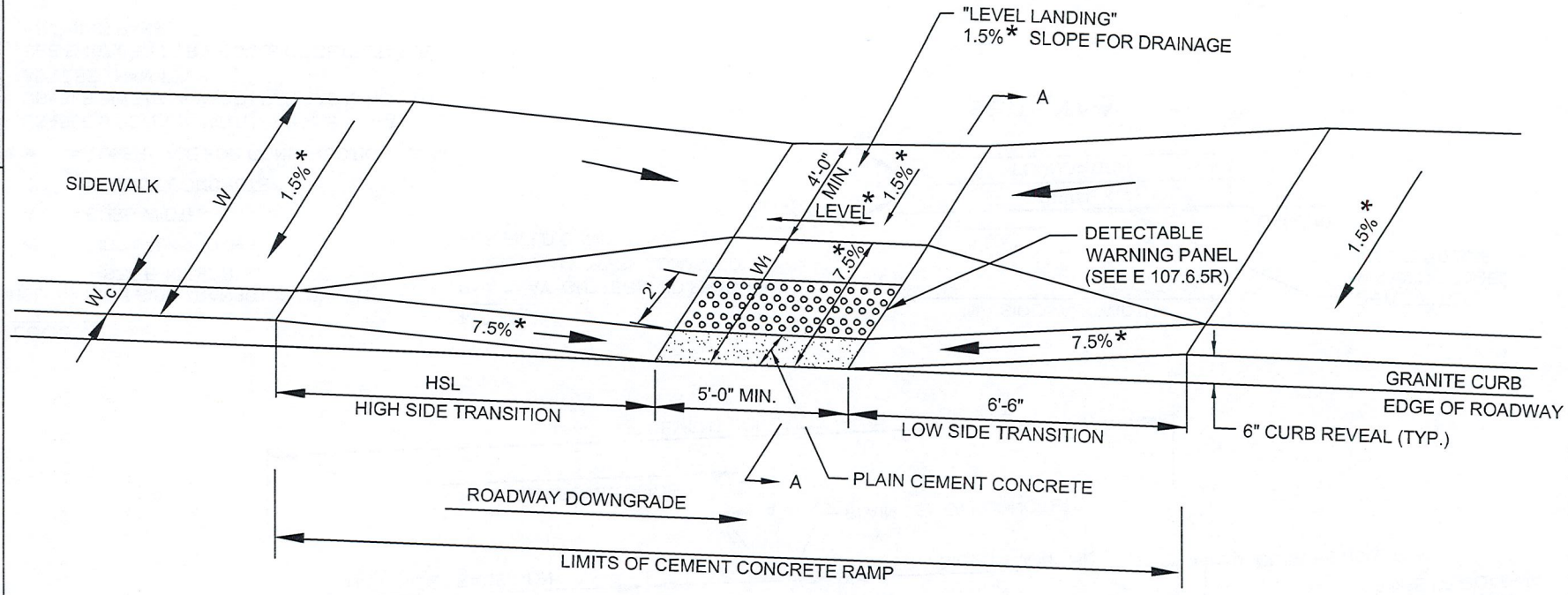
DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 107.1.0

massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

WHEELCHAIR RAMPS
LESS THAN 12'-4" SIDEWALK



LEGEND

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0R)

W = SIDEWALK WIDTH

W_C = CURB WIDTH

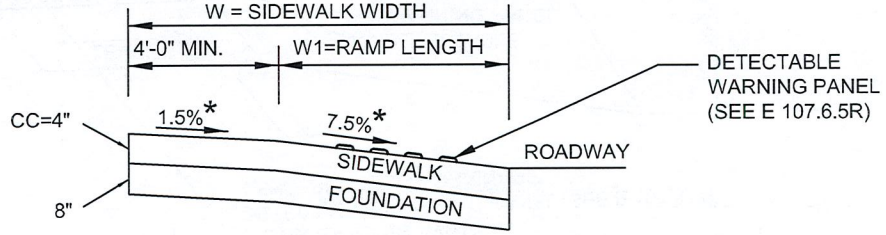
W_1 = PERPENDICULAR RAMP LENGTH

CC = CEMENT CONCRETE

* = TOLERANCE FOR CONSTRUCTION ±0.5%

USABLE SIDEWALK WIDTH PER AAB = W-Wc

RAMP LENGTH, W1 = W-4'-0" Min



SECTION A-A

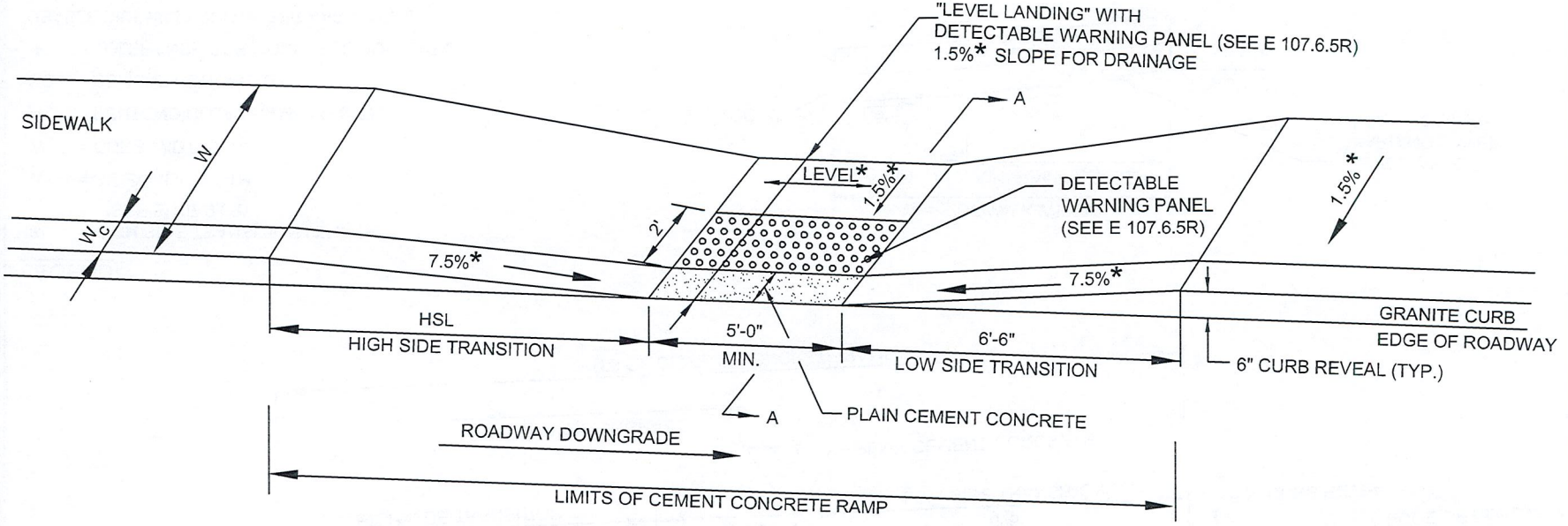
DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 107.2.0

MassDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

WHEELCHAIR RAMP ON NARROW SIDEWALK WITH DETECTABLE WARNING PANEL



LEGEND

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0R)

W = SIDEWALK WIDTH

W_C = CURB WIDTH

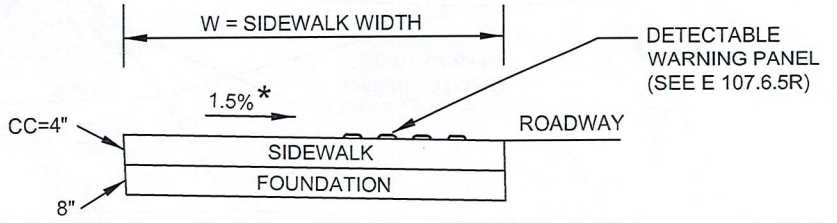
CC = CEMENT CONCRETE

* = TOLERANCE FOR CONSTRUCTION ±0.5%

USABLE SIDEWALK WIDTH PER AAB = W-Wc
USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'0"
SEE E 107.6.5R FOR DETAILS OF DETECTABLE WARNING PANEL

NOTE:

ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS



SECTION A-A

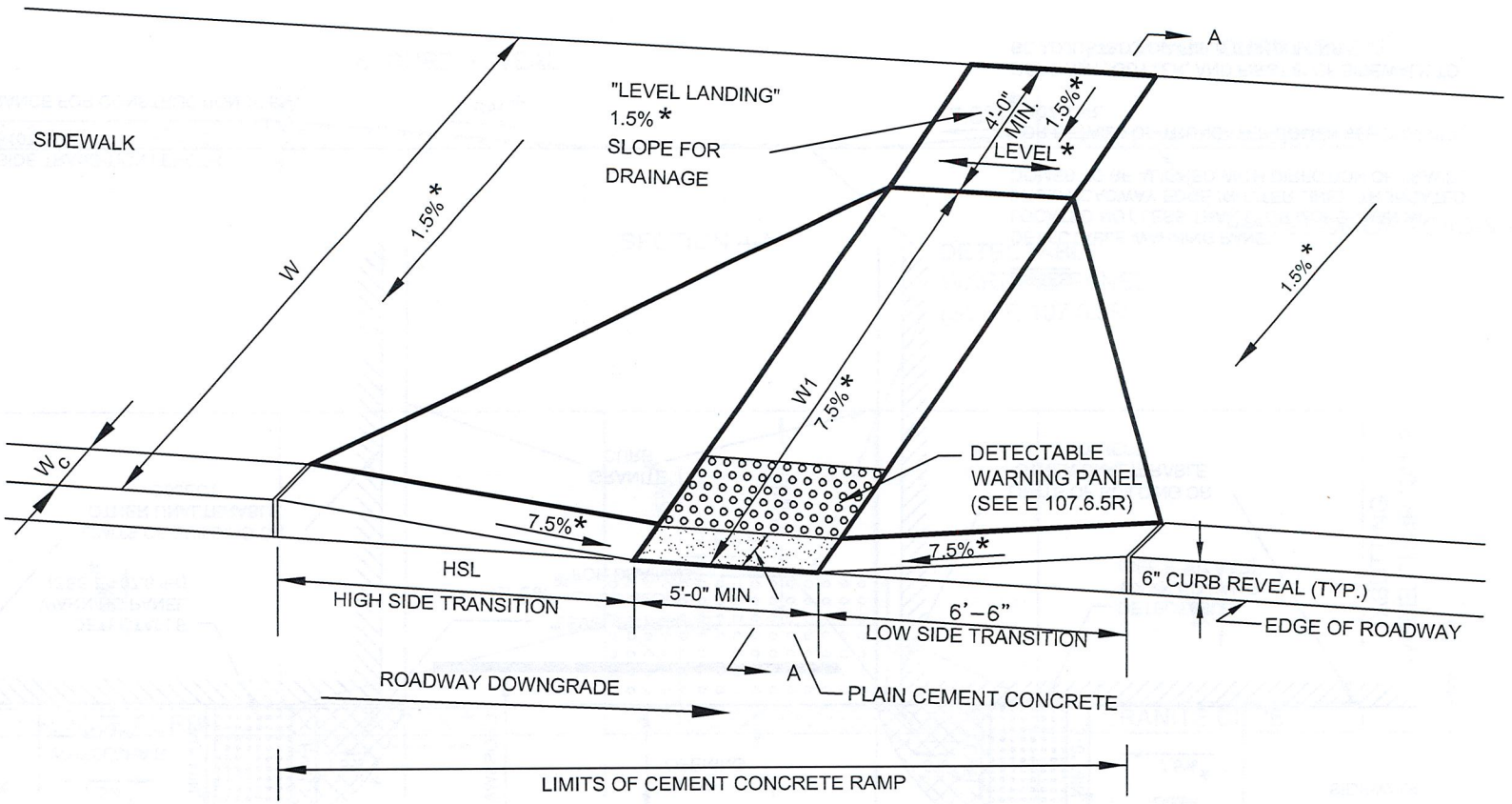
DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 107.2.1

massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

WHEELCHAIR RAMPS GREATER THAN 12'-4" SIDEWALK



LEGEND

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0R)

W = SIDEWALK WIDTH

W_C = CURB WIDTH

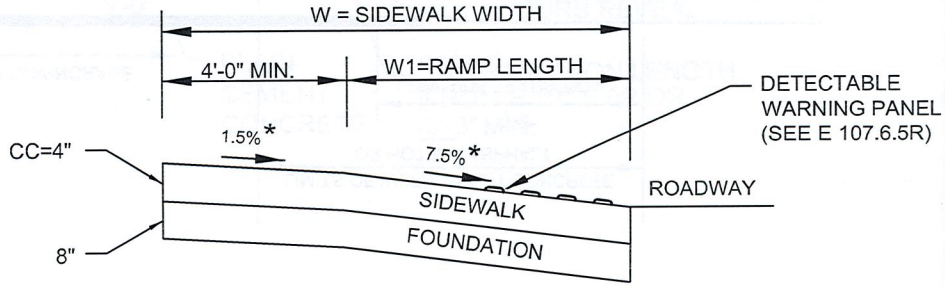
W 1 = PERPENDICULAR RAMP LENGTH

Cc = CEMENT CONCRETE

* = TOLERANCE FOR CONSTRUCTION ±0.5%

USABLE SIDEWALK WIDTH PER AAB = W-Wc

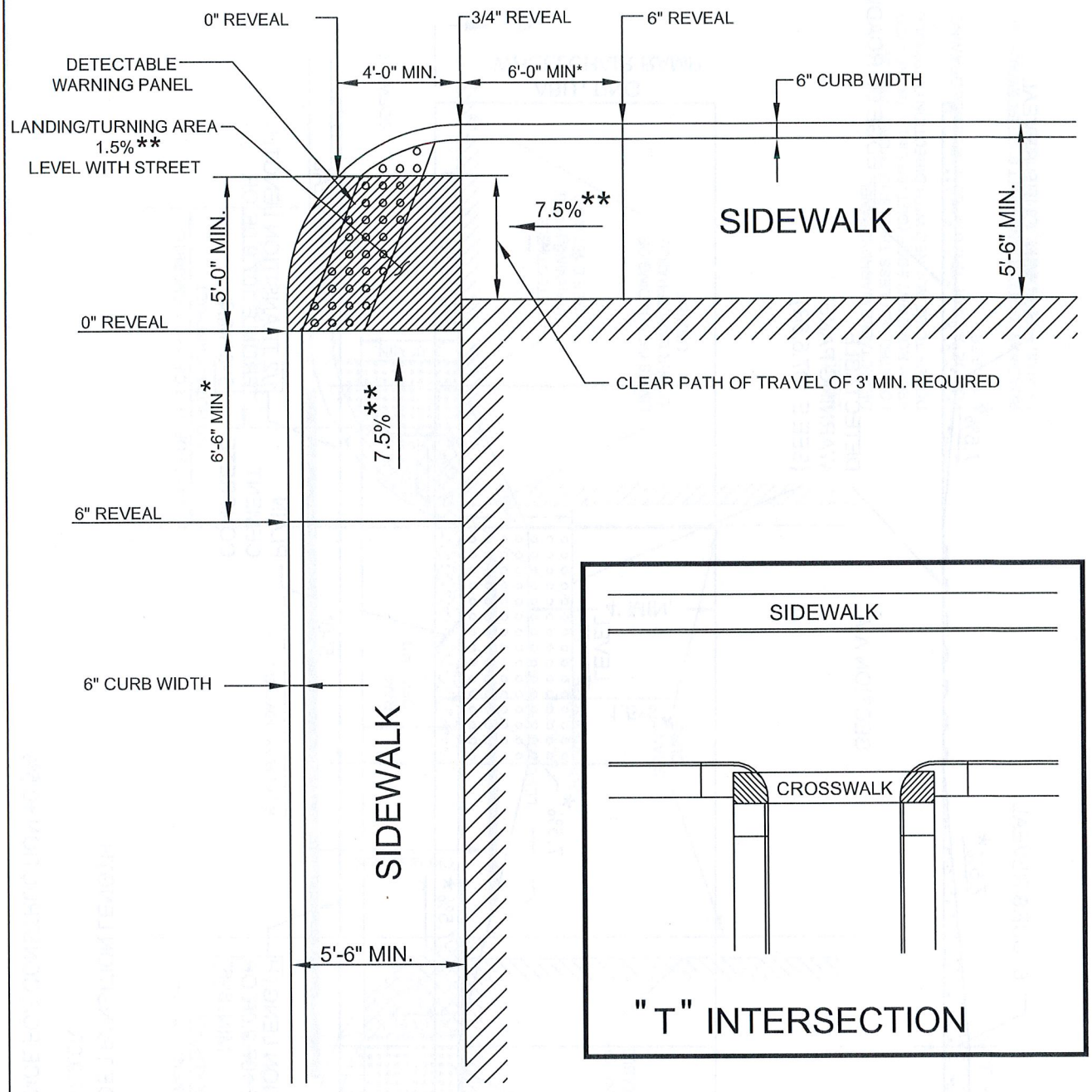
RAMP LENGTH, W1 = W-4'-0" Min



SECTION A-A

DATE OF ISSUE JUNE 2014

DRAWING NUMBER **E 107.3.0**



LEGEND

BUILDING OR OTHER UNALTERABLE CONDITION

* TRANSITION LENGTH SHOWN IS MINIMUM. (SEE E 107.9.0R)

** TOLERANCE FOR CONSTRUCTION ±0.5%

NOTE:

ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS

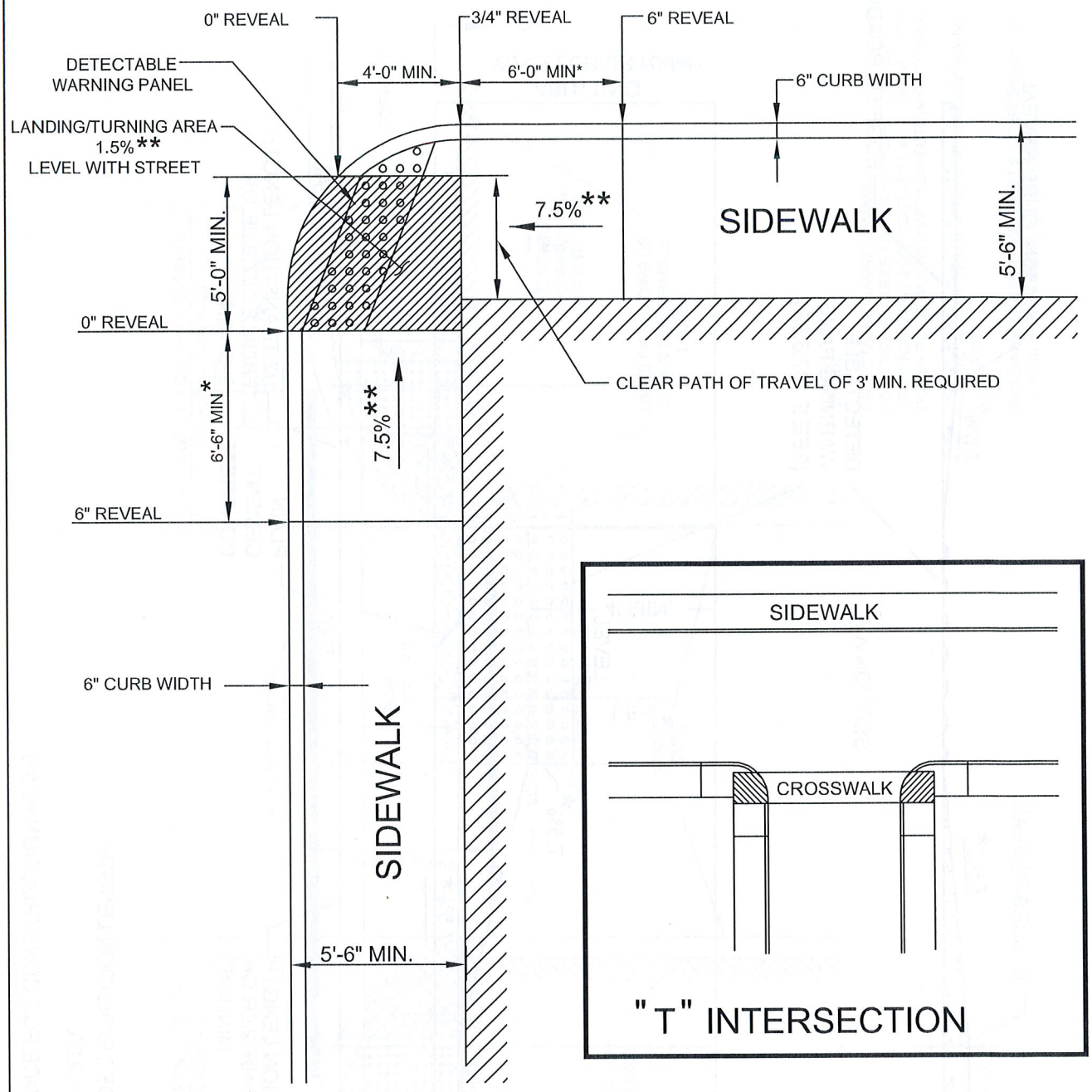
massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

"T" INTERSECTION WHEELCHAIR RAMP

DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 107.6.4



LEGEND

BUILDING OR OTHER UNALTERABLE CONDITION

* TRANSITION LENGTH SHOWN IS MINIMUM. (SEE E 107.9.0R)

** TOLERANCE FOR CONSTRUCTION ±0.5%

NOTE:

ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS

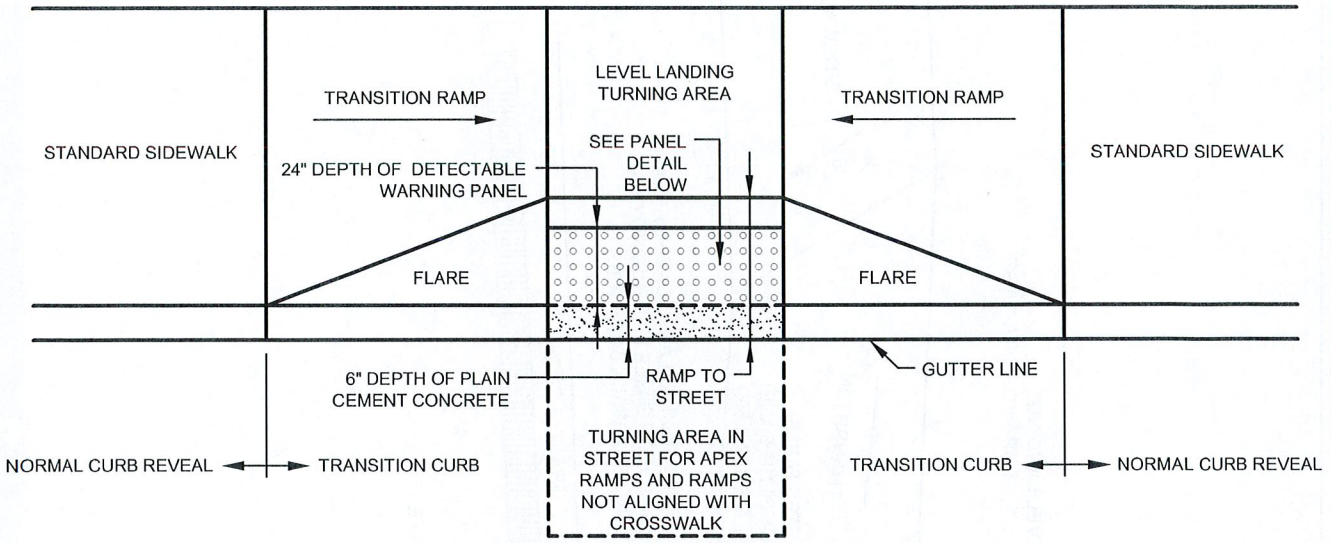
massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

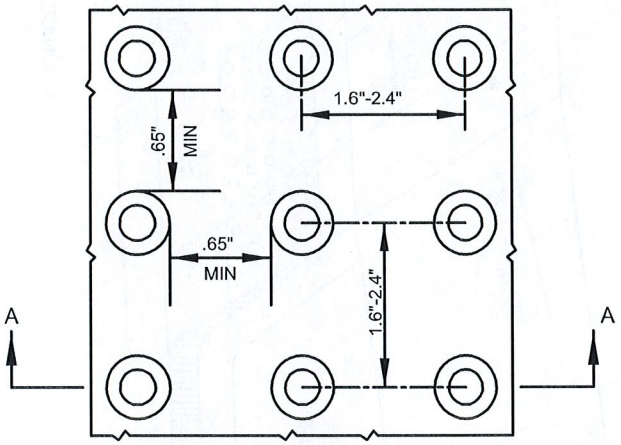
"T" INTERSECTION WHEELCHAIR RAMP

DATE OF ISSUE
JUNE 2014

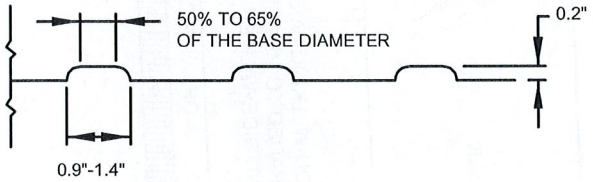
DRAWING NUMBER
E 107.6.4



TYPICAL INSTALLATION



DETAIL OF DETECTABLE WARNING PANEL



SECTION A-A

NOTE:

PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

MassDOT Massachusetts Department of Transportation Highway Division CONSTRUCTION STANDARDS	**DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS AND STANDARD RAMP TERMINOLOGY**	DATE OF ISSUE JUNE 2014 DRAWING NUMBER **E 107.6.5**

massDOT
Massachusetts Department of Transportation
Highway Division

CONSTRUCTION STANDARDS

WHEELCHAIR RAMP WITH LANDSCAPING STRIP

LEGEND

* = TOLERANCE FOR CONSTRUCTION ±0.5%

** = SEE E 107.9R FOR TRANSITION LENGTH

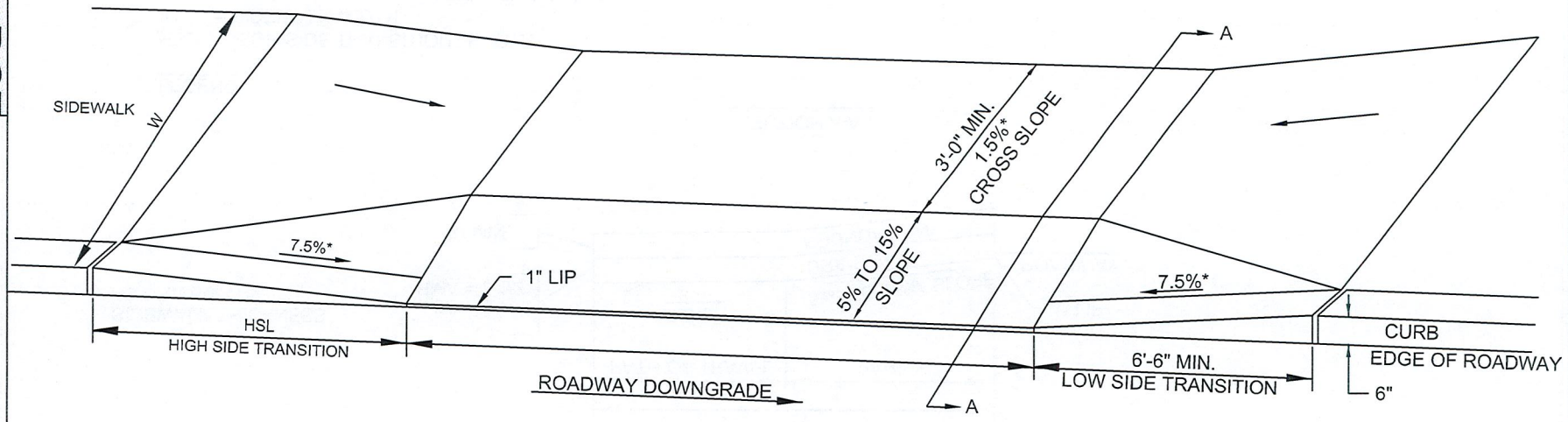
DATE OF ISSUE
JUNE 2014

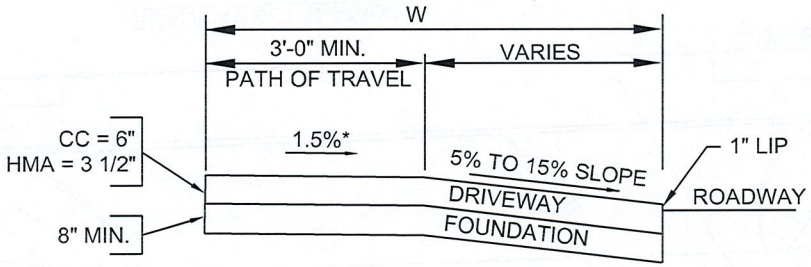
DRAWING NUMBER
E 107.6.9

massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

SIDEWALK THROUGH DRIVEWAYS WITHOUT CURB RETURNS





SECTION A-A

LEGEND

HSL = HIGH SIDE TRANSITION LENGTH. SEE E 107.9.0
W = SIDEWALK WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
CC = CEMENT CONCRETE
HMA = HOT MIX ASPHALT

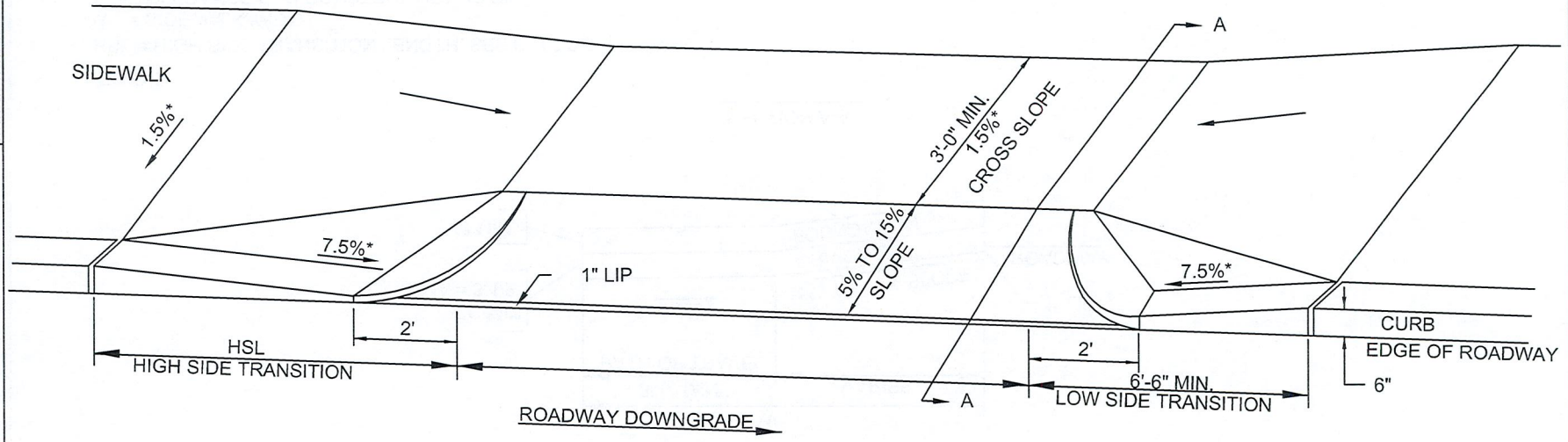
DATE OF ISSUE
JUNE 2014

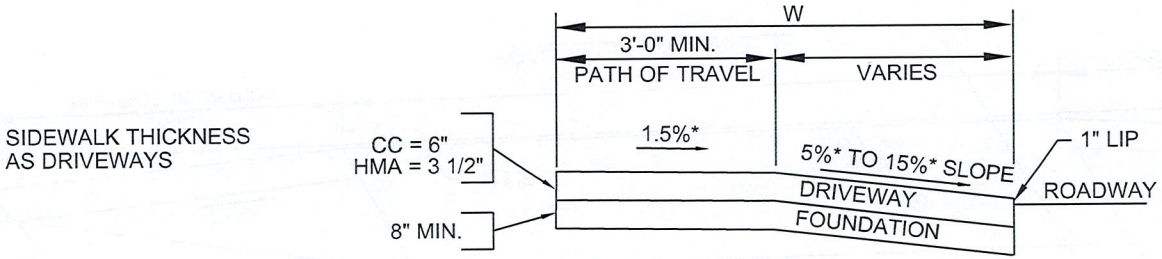
DRAWING NUMBER
E 107.7.0

MassDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

SIDEWALK THROUGH DRIVEWAYS WITH CURB RETURNS 2' CURB CORNERS





SECTION A-A

LEGEND

HSL = HIGH SIDE TRANSITION LENGTH
W = SIDEWALK WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
CC = CEMENT CONCRETE
HMA = HOT MIX ASPHALT

DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 107.8.0

ROADWAY PROFILE GRADE	* HIGH SIDE TRANSITION LENGTH
%	ENGLISH UNITS
=0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" Max

NOTE:

* BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".

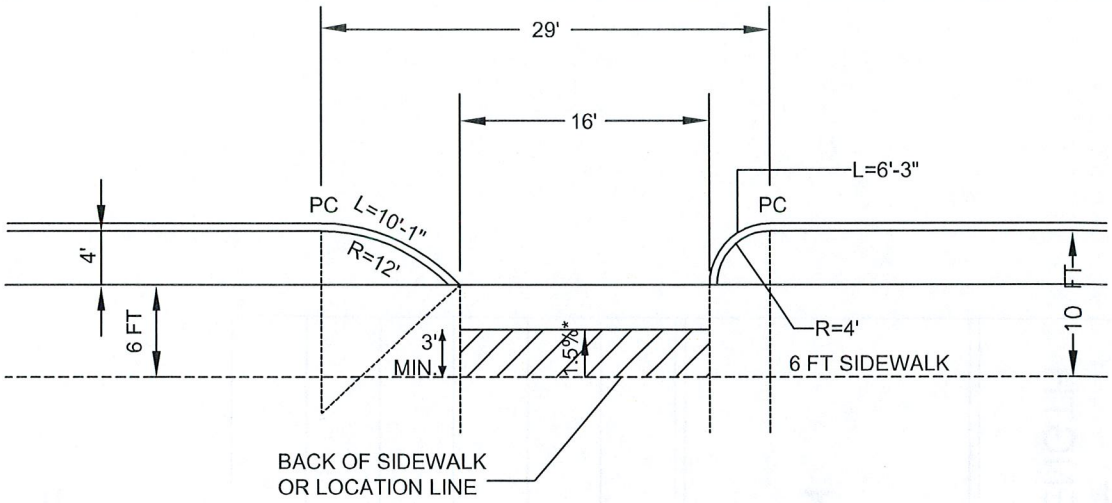
MassDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

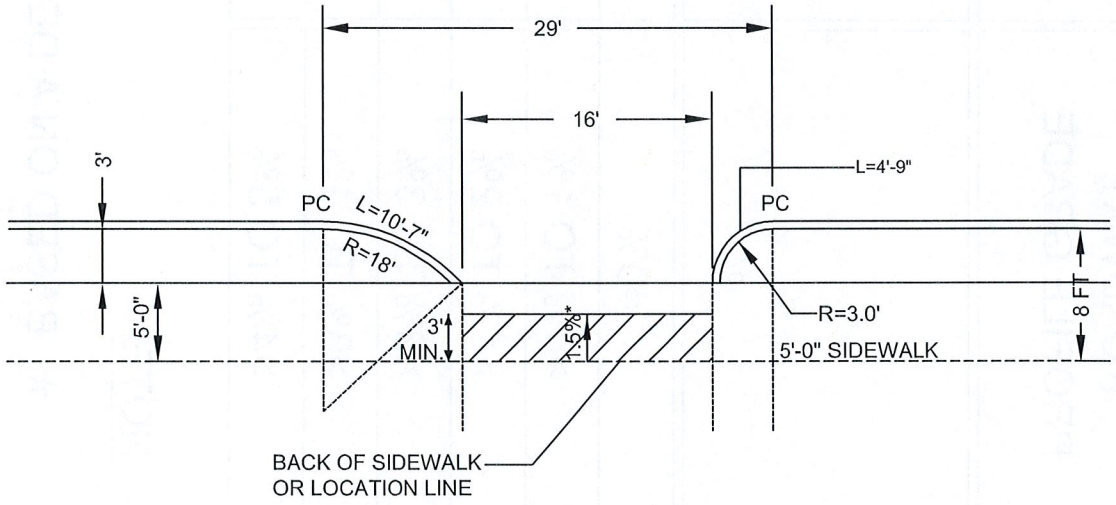
CURB TRANSITION LENGTH FOR WHEELCHAIR RAMPS

DATE OF ISSUE JUNE 2014

DRAWING NUMBER **E 107.9.0**



10 FT SIDEWALK LAYOUT



8 FT SIDEWALK LAYOUT

NOTES:

1. WHEN THE SIDEWALK IS PAVED TO THE CURB LINE, USE SHORT CURB RETURNS AT THE HIGHWAY CURB LINE PC'S, SHOWN IN THESE DESIGNS.

*MUST MAINTAIN PATH OF TRAVEL WITH 1.5% CROSS SLOPE (± 0.5% CONSTRUCTION TOLERANCE)

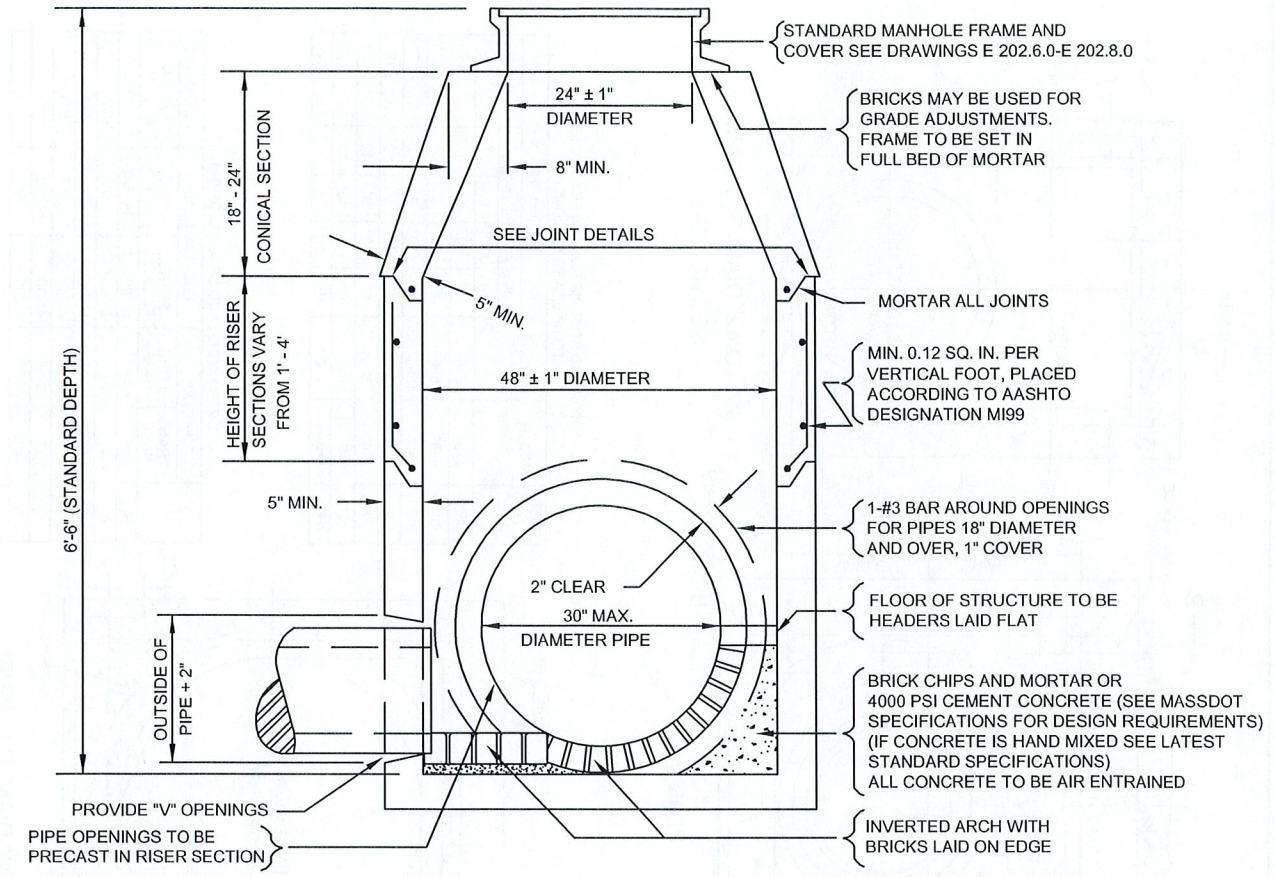
massDOT Massachusetts Department of Transportation Highway Division

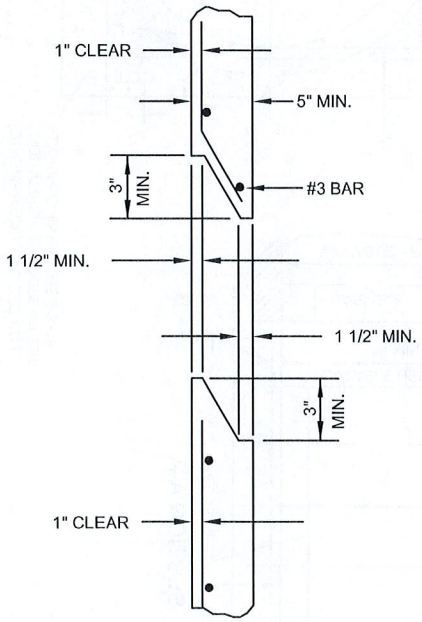
CONSTRUCTION STANDARDS

RESIDENTIAL DRIVEWAYS

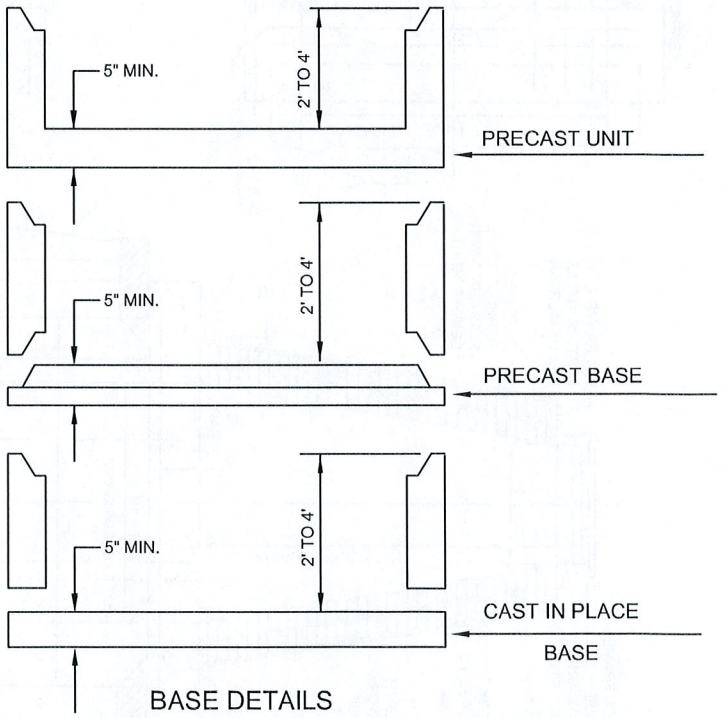
DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 107.8.1


STANDARD MANHOLE FRAME AND COVER SEE DRAWINGS E 202.6.0-E 202.8.0
24" ± 1" DIAMETER
8" MIN.
BRICKS MAY BE USED FOR GRADE ADJUSTMENTS. FRAME TO BE SET IN FULL BED OF MORTAR
18" - 24" CONICAL SECTION
SEE JOINT DETAILS
5" MIN.
MORTAR ALL JOINTS
HEIGHT OF RISER SECTIONS VARY FROM 1' - 4'
48" ± 1" DIAMETER
MIN. 0.12 SQ. IN. PER VERTICAL FOOT, PLACED ACCORDING TO AASHTO DESIGNATION MI99
6'-6" (STANDARD DEPTH)
5" MIN.
1-#3 BAR AROUND OPENINGS FOR PIPES 18" DIAMETER AND OVER, 1" COVER
2" CLEAR
30" MAX. DIAMETER PIPE
FLOOR OF STRUCTURE TO BE HEADERS LAID FLAT
OUTSIDE OF PIPE + 2"
BRICK CHIPS AND MORTAR OR 4000 PSI CEMENT CONCRETE (SEE MASSDOT SPECIFICATIONS FOR DESIGN REQUIREMENTS) (IF CONCRETE IS HAND MIXED SEE LATEST STANDARD SPECIFICATIONS) ALL CONCRETE TO BE AIR ENTRAINED
PROVIDE "V" OPENINGS
PIPE OPENINGS TO BE PRECAST IN RISER SECTION
INVERTED ARCH WITH BRICKS LAID ON EDGE



JOINT DETAILS



BASE DETAILS

NOTE:

1. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE LATEST STANDARD SPECIFICATIONS.

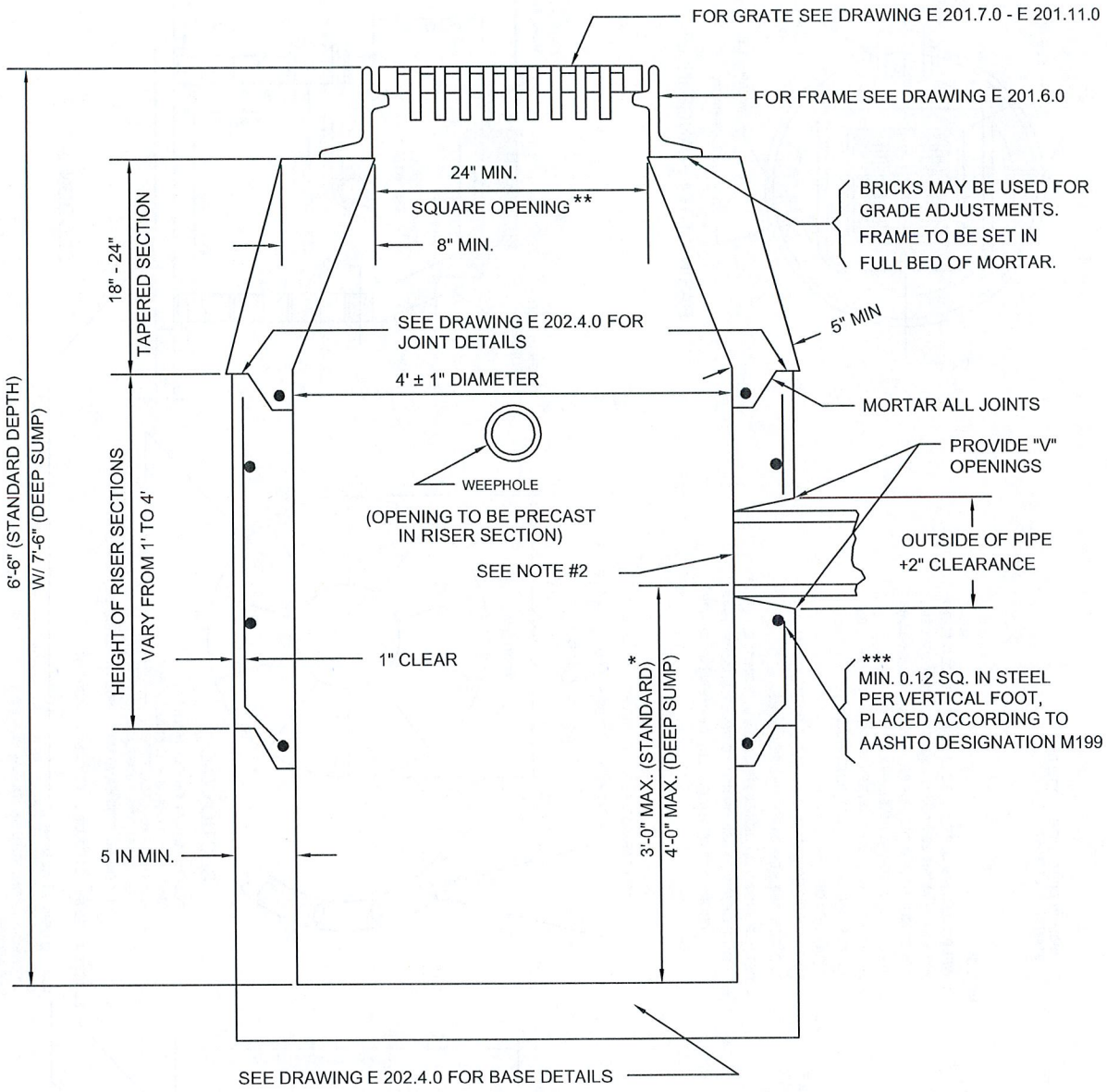
massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

PRECAST CONCRETE MANHOLES 9' OR LESS IN DEPTH

DATE OF ISSUE JUNE 2014

DRAWING NUMBER **E 202.4.0**


FOR GRATE SEE DRAWING E 201.7.0 - E 201.11.0
FOR FRAME SEE DRAWING E 201.6.0
24" MIN.
SQUARE OPENING **
8" MIN.
BRICKS MAY BE USED FOR GRADE ADJUSTMENTS.
FRAME TO BE SET IN FULL BED OF MORTAR.
18" - 24" TAPERED SECTION
SEE DRAWING E 202.4.0 FOR JOINT DETAILS
5" MIN
4' ± 1" DIAMETER
MORTAR ALL JOINTS
6'-6" (STANDARD DEPTH) W/ 7'-6" (DEEP SUMP)
WEEPHOLE
PROVIDE "V" OPENINGS
(OPENING TO BE PRECAST IN RISER SECTION)
OUTSIDE OF PIPE +2" CLEARANCE
SEE NOTE #2
HEIGHT OF RISER SECTIONS VARY FROM 1' TO 4'
1" CLEAR
*
3'-0" MAX. (STANDARD)
4'-0" MAX. (DEEP SUMP)
***
MIN. 0.12 SQ. IN STEEL PER VERTICAL FOOT, PLACED ACCORDING TO AASHTO DESIGNATION M199
5 IN MIN.
SEE DRAWING E 202.4.0 FOR BASE DETAILS

* MINIMUM DEPTH OF SUMP TO BE 2 FT

** WHEN A CURB INLET IS INSTALLED, THE OPENING IS TO BE 24"±1" X 27"±1"

*** REINFORCING STEEL BASED ON A WALL THICKNESS OF 5".

NOTES:

1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON E 201.3.0
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD SPECIFICATIONS.
4. ALL CONCRETE TO BE AIR ENTRAINED

massDOT Massachusetts Department of Transportation Highway Division
CONSTRUCTION STANDARDS

PRECAST CONCRETE CATCH BASIN

DATE OF ISSUE
JUNE 2014

DRAWING NUMBER
E 201.4.0